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WM. GEO. BRUCE
PUBLISHER
MILWAUKEE
NEW YORK — CHICAGO

ANNUAL SCHOOL HOUSE NUMBER

High School Graduating Exercises

Are rendered Attractive and Impressive by the use of

CAPS and GOWNS

An economical uniform, saving time and money at a busy season; democratic in its unifying effect and appropriate in its academic significance. A trial will convince you of its practical value to your school.

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Cotrell & Leonard

ALBANY, N. Y.

Teachers' Agencies.

FISHER TEACHERS' AGENCY

A. G. FISHER, Prop.

Excellent facilities for placing teachers in every part of the U. S. SEND FOR MANUAL.

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A PLACING AGENCY FOR TEACHERS

THE VERDICT

given our "placing service," after trial by the principal educational employers of the United States is summed up in the statement, "Beyond all question, your methods are more satisfactory than those of any other agency." We will send you typewritten, bound reports upon candidates we recommend. These reports tell you regarding the candidate's academic and professional education, teaching experience, certificates, age, health, personality, discipline, tact, expressive power, enthusiasm, loyalty and popularity. Isn't this kind of service worth trying? Write us regarding your vacancies to-day. BUSINESS-MEN'S CLEARING HOUSE, Inc., Dept. 26, Rooms 308 to 311 Century Bldg., Denver, Colo. Established seven years.

EXPERIENCED MEN with graduate university study, we place as Principals and Superintendents. Correspondence solicited.

CALIFORNIA TEACHERS' AGENCY

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PLACES MUSIC TEACHERS "EXCLUSIVELY"

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Midland Specialists' Agency - Warrensburg, Missouri

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Investigate our record for the past ten years.

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We charge no registration fee for a few weeks. Register now. School Superintendents, Normal and College Presidents are calling for teachers daily. Vacancies in all departments. Write: **ANNA M. THURSTON, Manager.**

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An Agency that selects and recommends teachers with care.

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H. D. Bartlett, Sec'y.

TRY US

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H. E. REED, Manager

637-641 University Block, Syracuse, N. Y.

Every year we register some of the best product of the leading Universities, Colleges and Normal Schools, in addition to many men and women of experience.

We can help you to secure efficient teachers. Write to us when you need them. Send for circular

THE PARKER TEACHERS' AGENCY

MADISON :: WISCONSIN

Branch Office: Colfax, Washington

Conducted by Willard N. Parker, formerly Assistant State Superintendent of Wisconsin.

Teachers' Agencies.

The Pratt Teachers' Agency

NO. 70 FIFTH AVENUE, NEW YORK

RECEIVES calls at all seasons for college and normal graduates, specialists, and other teachers in colleges, public and private schools, in all parts of the country.

Advises parents about schools **WM. O. PRATT, Manager**

TEACHERS WANTED FOR SEPTEMBER

BY

THE ALBERT TEACHERS' AGENCY

378 WABASH AVE., CHICAGO. We are now in the midst of things, daily filling good positions in Colleges, State Normal Schools, Public Schools and Private Schools. If you want personal service, write us. 8,000 positions filled through this one office.

Address **C. J. ALBERT, Manager**

The TEACHERS' EXCHANGE OF BOSTON

120 Boylston Street,

Recommends Teachers of all grades; Conducted primarily in the interest of School Employers.

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27TH YEAR **OVER 29,000 POSITIONS FILLED**

Our business this year surpasses that of last year by more than 50%. We are seeking teachers for next year as well as for emergency vacancies. Write us if available now or in the fall of 1910.

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A Successful School and College Bureau

All calls for teachers direct from school authorities. Positive personal recommendations. Competent teachers in demand. Registration fee $1.00. WRITE US.

9 JACKSON BOULEVARD : : : : : : : CHICAGO

B. F. CLARK CHICAGO, STEINWAY HALL 21ST YEAR

THE CLARK TEACHERS' AGENCIES

NORTHWESTERN OFFICE SPOKANE, WASH. PEYTON BLOCK

Not a notification but a recommendation agency

The Yates-Fisher Teachers' Agency

Paul Yates, Manager *Fine Arts Bldg., Chicago*

Colorado Teachers' Agency

FRED DICK, ex-State Supt., Mgr.,
Rooms 236-237 Empire Bldg., Denver, Colo.

Boston New York Chicago Des Moines Denver
Salt Lake City Los Angeles Harrisburg Atlanta

TEACHERS wanting positions in the West should register with us.
TEACHERS wanting more desirable positions than those they now have should keep their names on our list.
SCHOOL BOARDS are invited to send to us for teachers at any time. We endeavor to serve the best interests of the schools.

AN AGENCY THAT RECOMMENDS

of vacancies and tells you about them and recommends you that is more. Ours is valuable in proportion to its influence. If it merely hears is something; but if it is asked to recommend a teacher

THE SCHOOL BULLETIN AGENCY, C. W. BARDEEN, SYRACUSE, N. Y.

TEACHERS CO-OPERATIVE EMPLOYMENT BUREAU

COLLEGE AND NORMAL GRADUATES A SPECIALTY

We make no recommendations unless officially called upon and then submit only the number of candidates requested.

HOMER L. COOK, Mgr., 616 State Life Building, Indianapolis, Ind.

SCHERMERHORN TEACHERS' AGENCY, 353 Fifth Ave., NEW YORK

Oldest and best known in U. S. Est. 1855. **CHAS. W. MULFORD, Proprietor.**

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That the best way to secure a thoroughly competent superintendent, principal or teacher is to apply to the

Albany Teachers' Agency

If you do not know this send for circulars and learn what we can do for you.

We are prepared to make nominations for all kinds of school and college work. We can increase your range of choice and also save you time and trouble. Our services cost you nothing, and we shall be glad to hear from you when you have vacancies to fill.

HARLAN P. FRENCH

81 Chapel Street **ALBANY, N. Y.**

When you figure up the cost

on the basis of the initial price plus cost of maintenance per year of service (the only true "cost yard stick") you will find that the most economical boards are our

Natural Slate Blackboards

In addition they are the most efficient in service because of their strength, cleanliness, durability, smooth writing surface, uniform lasting dark color, low cost; because they do not warp, do not split, do not crack, do not buckle, do not peel off, do not wear out (owing to the non-porosity, hence non-absorption of the slate).

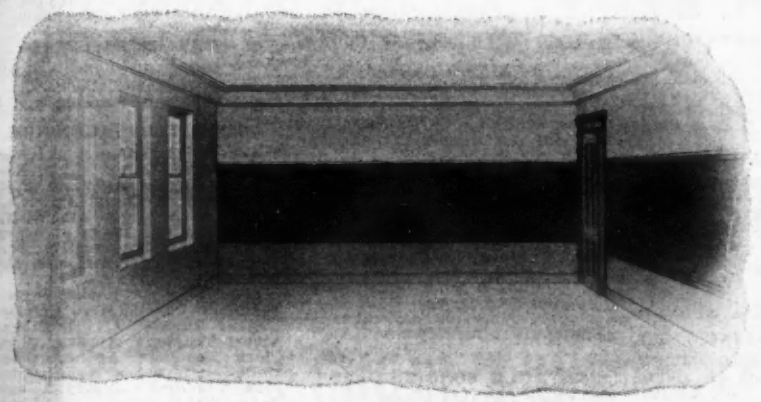
Let us prove it.

Let us send you our handy pigeon-hole guide showing how to judge, specify and install blackboards.

Penna. Structural Slate Co.

Worth Bldg., Easton, Pa.

GENUINE BANGOR SANITARY SLATE FOR SCHOOLS



If interested in **BLACKBOARDS** send for our booklet.

NATURAL SLATE BLACKBOARDS

Why you need them. How to install them in your school rooms.

For anything in slate—ask us—we want to show you.

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Established 1884

E. J. JOHNSON

38 PARK ROW QUARRIER OF **NEW YORK**

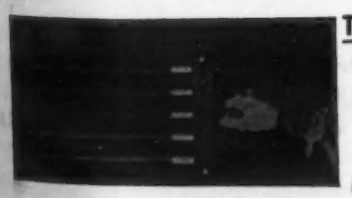
SLATE BLACKBOARDS

WE ARE FIRST HANDS

THE STRONGEST SLATE, PERFECT FINISH
PROMPT SHIPMENT

PRICES QUOTED INCLUDING FREIGHT.
PAMPHLET WITH SETTING INSTRUCTIONS FREE.
CORRESPONDENCE SOLICITED.

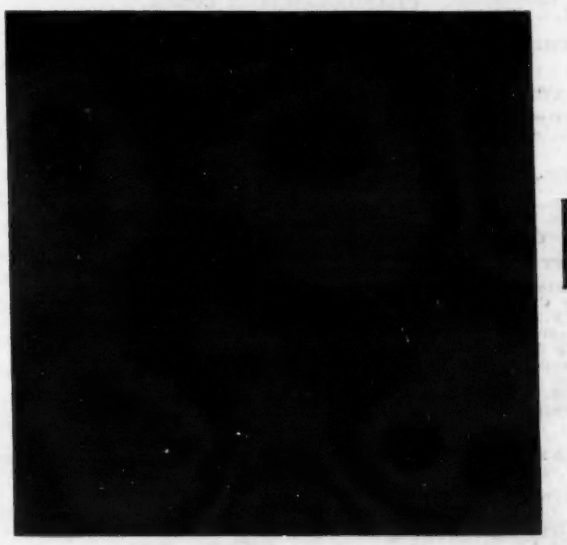
ROOFING SLATE — Black-Green-Purple-Red



THE RAPID BLACKBOARD LINER

Easy to Handle.
For Music and Penmanship.
Sent postpaid on receipt of 25 cents.
College and School Supplies.
PECKHAM, LITTLE & CO.,
57-59 E. 11th St. NEW YORK

CARBONALL BLACKBOARD



ORDINARY COATED BLACKBOARD

Look at the Difference in these Blackboard Surfaces

CARBONALL BLACKBOARD

is the only blackboard which reproduces the grayish flat black surface of natural slate.

The value of this is threefold.

First, it does not reflect back the light into the scholars' eyes, which is a great fault in the use of the shiny varnished-like surface of ordinary coated board, and one which has been recognized as distinctly injurious to the scholars' sight.

Second, by reason of the non-reflection of light, all characters on Carbonall Blackboard can be distinctly seen *from any angle.*

Third, all characters stand out clear, distinct and perfect, *no matter what kind of a crayon is used,* whether hard, soft, Talc pencil, soapstone, colored crayons, all show up strong and clear on Carbonall Blackboard.

From the standpoint of cost Carbonall Blackboard is a decided economy. Its first cost, or selling price, is no higher than other brands, and its wearing quality is so vastly superior to all others that it *will far outlast any other brand on the market.*

WE WILL PROVE THE ABOVE FACTS

Just ask us to send you a sample of Carbonall Blackboard at our expense. Examine it carefully. Use any kind of crayon on it. Erase over it. *Sandpaper* it if you choose. Wash it as often as you like. Put it to any kind of test you please. Then you will *know* that Carbonall Blackboard is so far superior to, and so much cheaper eventually than any other, that you would not think of buying any other kind.

Just ask us for the sample — it's free.

THE GOOD PAINT CO.

1710 W. Austin Av., CHICAGO

Makers of

Carbonall Blackboard
Carbonall Liquid Blackboard Slating
Carbonall Metal Preservative
Carbonall Waterproofing Compound
Carbonall Metal Paints

TEAR OFF—SIGN AND MAIL

THE GOOD PAINT CO.
1710 W. Austin Av.
CHICAGO

Send samples of Carbonall Blackboard to

Name.....

St. and No.....

P. O.....

Directory for School Supplies

The names given below are those of the leading and most reliable School Supply Houses in the United States. None other can receive a place in this Directory. Everything required in or about a school house may be secured promptly and at the lowest market price by ordering from these Firms.

APPARATUS—GENERAL.

American Seating Co. N.Y. & Ch'go
McConnell Sch. Sup. Co....Phila.
Columbia Sch. Sup. Co.....
..... Indianapolis
E. W. A. Rowles.....Chicago
Goder-Heimann Co. .....Chicago

APPARATUS—SCIENTIFIC.

McAllister, Mfg. Opticians,
Dept. 15.....New York
Ward's Natural Science Est....
.....Rochester, N. Y.
Bausch & Lomb..Rochester, N. Y.
Columbia School Supply Co....
..... Indianapolis, Ind.
C. H. Stoelting Co.....Chicago
McIntosh Stereopticon Co. Chicago
Goder-Heimann Co. .....Chicago

ARCHITECTS—SCHOOL.

Geo. W. Ashby.....Chicago

BELLS—MANUFACTURERS.

Meneely & Co..Watervliet, N. Y.
St. Louis Bell Fdry. St. Louis, Mo.

(Dealers.)

McConnell Sch. Sup. Co....Phila.
E. W. A. Rowles.....Chicago
Orr & Lockett Hdw. Co..Chicago
American Seating Co. N. Y. Ch'go
L. A. Murray & Co. Kilbourn, Wis.

BLACKBOARDS—COMPOSITION

N. Y. Silicate Book Slate Co. N.Y.
McConnell Sch. Supply Co..Phila.
Haney School Furn. Co.....
.....Grand Rapids, Mich.
Columbia School Supply Co.....
..... Indianapolis, Ind.
E. W. A. Rowles.....Chicago
American Seating Co. N. Y. Ch'go
L. A. Murray.....Kilbourn, Wis.
Good Paint Co.....Chicago

BLACKBOARDS—NATURAL SLATE.

E. J. Johnson.....New York
Penn. Structural Slate Co.....
.....Worth Bldg., Easton, Pa.
Keenan Structural Slate Co....
..... Bangor, Pa.
Main-Bangor Slate Co. Bangor, Pa.

(Dealers.)

Peckham, Little & Co.....N. Y.
McConnell Sch. Supply Co..Phila.
Haney School Furn. Co.....
.....Grand Rapids, Mich.
Columbia Sch. Supply Co.....
..... Indianapolis, Ind.
E. W. A. Rowles.....Chicago
American Seating Co. N. Y. Ch'go
L. A. Murray & Co. Kilbourn, Wis.

BOOK COVERS.

Holden Book Cover Co.....
..... Springfield, Mass.
Natl. Book Cover Co.....
.....Syracuse, N. Y.

BRUSHES—DUSTLESS.

Milwaukee Dustless Brush Co..
..... Milwaukee, Wis.

BRUSHES—FLOOR.

Orr & Lockett Hdw. Co..Chicago

CAPS AND GOWNS.

Cotrell & Leonard...Albany, N. Y.
Zimmermann Bros. Clothing Co.
..... Milwaukee

CHARTS.

Peckham, Little & Co.....N. Y.
Milton-Bradley Co.....Springfield
McConnell Sch. Supply Co..Phila.
Haney School Furn. Co.....
.....Grand Rapids, Mich.
E. W. A. Rowles.....Chicago
A. J. Nystrom.....Chicago
Goder-Heimann Co. .....Chicago
American Seating Co. N. Y. Ch'go
L. A. Murray & Co. Kilbourn, Wis.

CLOCKS—PROGRAM.

Standard Electric Time Co. Boston
Fred Frick Clock Co.....
..... Waynesboro, Pa.
Hahl Automatic Clock Co. Chicago
R. W. Paltridge.....Chicago
H. M. Eldred, 819 Pabst Bldg.
..... Milwaukee

CRAYONS—DUSTLESS.

American Crayon Co. Sandusky, O.
Standard Crayon Mfg. Co.....
..... Danvers, Mass.

(Dealers.)

N. Y. Silicate Book Slate Co. N.Y.
Eagle Pencil Co.....N. Y.
McConnell Sch. Supply Co..Phila.
Haney School Furn. Co.....
.....Grand Rapids, Mich.
Columbia School Supply Co....
..... Indianapolis, Ind.
E. W. A. Rowles.....Chicago
American Seating Co. N. Y. Ch'go
L. A. Murray & Co. Kilbourn, Wis.
Moore Mfg. Co...Springfield, Mo.

CRAYONS—WATER COLOR.

Am. Crayon Co.....Sandusky, O.
Prang Ed. Co....N. Y. & Chicago

DEAFENING QUILT.

Samuel Cabot .....Boston

DIPLOMAS.

Ames & Rollinson Co...New York

DRAWING SUPPLIES.

Eagle Pencil Co.....N. Y.
Jos. Dixon Crucible Co.....
.....Jersey City, N. J.
Milton Bradley Co.....
..... Springfield, Mass.
Standard Crayon Mfg. Co.....
..... Danvers, Mass.
American Crayon Co. Sandusky, O.
Economy Drawing Table Co....
.....Toledo, O.
Columbia School Supply Co....
..... Indianapolis, Ind.
Prang Ed. Co.....N. Y., Chicago
Devoe, Dept. 5.....N. Y., Chicago

DRINKING FOUNTAINS.

L. Wolff Mfg. Co.....Chicago
Jas. B. Clow & Sons.....Chicago
N. O. Nelson Mfg. Co....St. Louis
American Sanitary Fountain Co.
..... Indianapolis
Springfield Sanitary Fountain Co. .....Chicopee, Mass.

DUPLICATORS.

Hektograph Co.....New York

ELECTRIC CLOCK SYSTEMS.

Standard Electric Time Co. Boston
Fred Frick.....Waynesboro, Pa.
R. W. Paltridge & Co....Chicago
H. M. Eldred, 819 Pabst Bldg.
..... Milwaukee

ERASERS.

N. Y. Silicate Book Slate Co. N.Y.
Peckham, Little & Co.....N. Y.
McConnell Sch. Supply Co..Phila.
Haney School Furn. Co.....
.....Grand Rapids, Mich.
Columbia School Supply Co....
..... Indianapolis, Ind.
E. W. A. Rowles.....Chicago
American Seating Co. N. Y. Ch'go
L. A. Murray & Co. Kilbourn, Wis.
Moore Mfg. Co...Springfield, Mo.

FLAGS AND BUNTING.

Peckham, Little & Co.....N. Y.
Haney School Furn. Co.....
.....Grand Rapids, Mich.
Columbia School Supply Co....
..... Indianapolis, Ind.
E. W. A. Rowles.....Chicago
L. A. Murray & Co. Kilbourn, Wis.

FLOOR DEAFENING.

Samuel Cabot .....Boston

FLOOR DRESSING.

Standard Oil Co..Principal Cities

FLOORING—SANITARY.

Marbleloid Co.....New York

GAMES.

Improved Shuffle Board Co.....
.....Grand Rapids, Mich.

GLOBES.

Peckham, Little & Co.....N. Y.
McConnell Sch. Supply Co..Phila.
Haney School Furn. Co.....
.....Grand Rapids, Mich.
Columbia School Supply Co....
..... Indianapolis, Ind.
E. W. A. Rowles.....Chicago
A. J. Nystrom.....Chicago
Goder-Heimann Co. .....Chicago
American Seating Co. N. Y. Ch'go
L. A. Murray & Co. Kilbourn, Wis.
Moore Mfg. Co....Springfield, Mo.

GYMNASIUM APPARATUS.

Fred Medart Mfg. Co....St. Louis

HEATING AND VENTILATING ENGINEERS.

Vacuum Ventilator Co.....Boston
Lewis & Kitchen.....Chicago
Columbus Htg. & Vtg. Co.....
..... Columbus, O.
Peck-Hammond Co.....Cincinnati

INKS.

Barbour Tablet Ink Co.....
..... Evansville, Ind.
George Mfg Co.....Chicago

INK WELLS.

Squires Ink Well Co. Pittsburg, Pa.
U. S. Inkwell Co...Des Moines,
.....Ia., and Evansville, Ind.

KINDERGARTEN SUPPLIES.

Milton-Bradley Co. ...Springfield
Thomas H. Charles Co....Chicago
E. W. A. Rowles.....Chicago

LABORATORY FURNITURE.

Economy Drawing Table Co....
.....Toledo, O.
Columbia School Supply Co....
..... Indianapolis, Ind.
American Seat. Co..N.Y. & Ch'go

LANTERN SLIDES.

McAllister, Mfg. Opticians,
Dept. 15.....New York
McIntosh Stereopticon Co., Dept. 3 ..... Chicago
C. H. Stoelting Co.....Chicago

LATHES.

Shepard Lathe Co.....Cincinnati
Orr & Lockett Hdw. Co.....Chicago

LIQUID SLATING.

N. Y. Silicate Book Slate Co. N.Y.
McConnell Sch. Supply Co..Phila.
Haney School Furn. Co.....
.....Grand Rapids, Mich.
Columbia School Supply Co....
..... Indianapolis, Ind.
E. W. A. Rowles.....Chicago
L. A. Murray & Co. Kilbourn, Wis.

LOCKERS—STEEL.

Durand Steel Locker Co..Chicago

MANUAL TRAINING BENCHES.

Chandler & Barber.....Boston
Grand Rapids Hand Screw Co..
..... Grand Rapids, Mich.
Columbia School Supply Co....
..... Indianapolis, Ind.
Economy Drawing Table Co....
.....Toledo, O.
C. Christiansen .....Chicago
E. H. Sheldon & Co.....Chicago
Orr & Lockett Hdw. Co..Chicago

MANUAL TRAINING SUPPLIES.

Chandler & Barber.....Boston
C. Christiansen .....Chicago
E. H. Sheldon & Co.....Chicago
Orr & Lockett Hdw. Co..Chicago
Grand Rapids Hand Screw Co..
.....Grand Rapids, Mich.
Moore Mfg. Co...Springfield, Mo.

MAPS.

Peckham, Little & Co.....N. Y.
McConnell Sch. Supply Co..Phila.
Haney School Furn. Co.....
.....Grand Rapids, Mich.
Columbia School Supply Co....
..... Indianapolis, Ind.
E. W. A. Rowles.....Chicago
Atlas School Supply Co....Chicago
Rand, McNally & Co.....Chicago
Goder-Heimann Co. .....Chicago
American Seating Co. N. Y. Ch'go
W. & A. K. Johnston....Chicago
A. J. Nystrom & Co.....Chicago
Moore Mfg. Co...Springfield, Mo.

OPERA CHAIRS.

Peckham, Little & Co.....N. Y.
Haney School Furn. Co.....
.....Grand Rapids, Mich.
E. W. A. Rowles.....Chicago
American Seating Co. N. Y. Ch'go
L. A. Murray & Co. Kilbourn, Wis.
Moore Mfg. Co...Springfield, Mo.

PENCIL MANUFACTURERS.

Jos. Dixon Crucible Co.....
.....Jersey City, N. J.
Eagle Pencil Co.....N. Y. City
Eberhard Faber.....N. Y. City

PENCIL SHARPENERS.

F. H. Cook & Co. Leominster, Mass.
N. Y. Silicate Book Slate Co..N.Y.
Peckham, Little & Co.....N. Y.
Eagle Pencil Co.....N. Y. City
Eberhard Faber.....N. Y. City
Jos. Dixon Crucible Co.....
.....Jersey City, N. J.
E. W. A. Rowles.....Chicago
L. A. Murray & Co. Kilbourn, Wis.

PEN MANUFACTURERS.

Esterbrook Steel Pen Mfg. Co. N.Y.
Eagle Pencil Co.....N. Y. City

PHYSICAL AND CHEMICAL APPARATUS.

Columbia School Supply Co....
..... Indianapolis, Ind.
C. H. Stoelting Co.....Chicago

PICTURES FOR DECORATION.

National Art Supply Co., Chicago

PLASTER CASTS.

C. Hennecke Co..Milwaukee, Wis.
P. P. Caproni & Bro.....Boston
Boston Sculpture Co. Melrose, Mass
National Art Supply Co., Chicago

PLUMBING FIXTURES—SCHOOL.

N. O. Nelson Mfg. Co.....
....St. Louis, Edwardsville, Ill.
Lewis & Kitchen.....
.....Chicago and Kansas City
L. Wolff Mfg. Co.....Chicago
Jas. B. Clow & Sons.....Chicago
Columbus Htg. & Vtg. Co.....
..... Columbus, O.
American Sanitary Fountain Co.
..... Indianapolis

PORTABLE SCHOOLHOUSES.

American Portable House Co...
..... Seattle, Wash.

PROJECTION LANTERNS AND SCREENS.

McAllister, Mfg. Opticians,
Dept. 15.....New York
C. H. Stoelting Co.....Chicago
McIntosh Stereopticon Co.....
.....Dept. 3, Chicago
Bausch & Lomb..Rochester, N. Y.

PROGRAM CLOCKS.

(See Clocks—Program.)

RELIEF GLOBES AND MAPS.

Goder-Heimann Co. .....Chicago
Atlas School Supply Co...Chicago
McConnell Sch. Supply Co..Phila.

ROOFING—SLATE.

Penn. Struct. Slate Co.....
.....Worth Bldg., Easton, Pa.
Keenan Structural Slate Co....
..... Bangor, Pa.
Main-Bangor Slate Co. Bangor, Pa.
E. J. Johnson.....New York

SANITARY ENGINEERS.

Lewis & Kitchen.....Chicago
Columbus Htg. & Vtg. Co.....
..... Columbus, O.
Peck-Hammond Co.....Cincinnati

SANITARY FIXTURES.

Keenan Structural Slate Co....
..... Bangor, Pa.
Main-Bangor Slate Co. Bangor, Pa.
N. O. Nelson Mfg. Co....St. Louis
L. Wolff Mnfg. Co.....Chicago
Jas. B. Clow & Sons.....Chicago
Lewis & Kitchen.....Chicago
Columbus Htg. & Vtg. Co.....
..... Columbus, O.

SCHOOL BLANKS.

Peckham, Little & Co.....N. Y.
McConnell Sch. Supply Co..Phila.
E. W. A. Rowles.....Chicago

SCHOOL FURNITURE.

W. A. Choate.....Albany, N. Y.
Economy Drawing Table Co....
.....Toledo, O.
Columbia School Supply Co....
..... Indianapolis, Ind.
Haney School Furn. Co.....
.....Grand Rapids, Mich.
E. W. A. Rowles.....Chicago
American Seating Co. N. Y. Ch'go
Sears, Roebuck & Co.....Chicago
Moore Mfg. Co...Springfield, Mo.

SCHOOL PLAYS.

L. Hagemann & Co.....Chicago

SCHOOL SUPPLIES.

Peckham, Little & Co.....N. Y.
N. Y. Silicate Book Slate Co. N.Y.
W. A. Choate.....Albany, N. Y.
McConnell Sch. Supply Co..Phila.
Columbia School Supply Co....
..... Indianapolis, Ind.
Haney School Furn. Co.....
.....Grand Rapids, Mich.
E. W. A. Rowles.....Chicago
American Seating Co. N. Y. Ch'go
L. A. Murray & Co. Kilbourn, Wis.
Moore Mfg. Co...Springfield, Mo.

SEWAGE DISPOSAL.

N. O. Nelson Mfg. Co....St. Louis
Lewis & Kitchen.....
.....Chicago, Kansas City, Mo.

TEACHERS' AGENCIES.

Teachers' Exchange .....Boston
Fisher Tchrs. Agcy.....Boston
Pratt Teachers' Agcy..N. Y. City
Schermerhorn Tchrs' Agcy..N. Y.
Albany Tchrs' Agcy. Albany, N. Y.
School Bulletin Agency..Syracuse
Reed Teachers' Agency.....
.....Syracuse, N. Y.
Interstate Tchrs Agcy.....
.....Rochester, N. Y.
Teachers' Co-operative Employment Bureau .....Indianapolis
Albert Teachers' Agency..Chicago
Clark Teachers' Agency..Chicago
McCullough Tchrs' Agcy..Chicago
Fisk Teachers' Agency...Chicago
Yates-Fishes Agcy .....Chicago
Thurston Tchrs Agcy....Chicago
Music Teachers' Exchange..Chi'go
Parker Edu. Bureau. Madison, Wis.
Colorado Teachers' Agcy..Denver
Specialists' Agcy. O. J. Osborn,
..... Warrensburg, Mo.
Calif. Tchrs. Agcy.....
.....Los Angeles, Cal.
Business Men's Clearing House..
..... Denver, Colo.

TYPEWRITERS.

Smith-Premier Typewriter Co..
.....Syracuse, N. Y.
Victor Typewriter Co.....N. Y.
Remington Typewriter Co...N. Y.

VACUUM CLEANERS.

American Air Cleaning Co.....
..... Milwaukee, Wis

VENTILATORS.

Vacuum Ventilator Co.....Boston

WALL DEAFENING.

Samuel Cabot .....Boston

WARDROBES.

Durand Steel Locker Co..Chicago

WATER COLOR PAINTS.

Milton-Bradley Co. .....
..... Springfield, Mass
Am. Crayon Co.....Sandusky, O.
Prang Educational Co....Chicago
Devoe, Dept. 5....Chicago, N. Y.

WHOLESALE BOOKS.

Hart Hanson Co.....Chicago
Keystone Book Co.....Chicago

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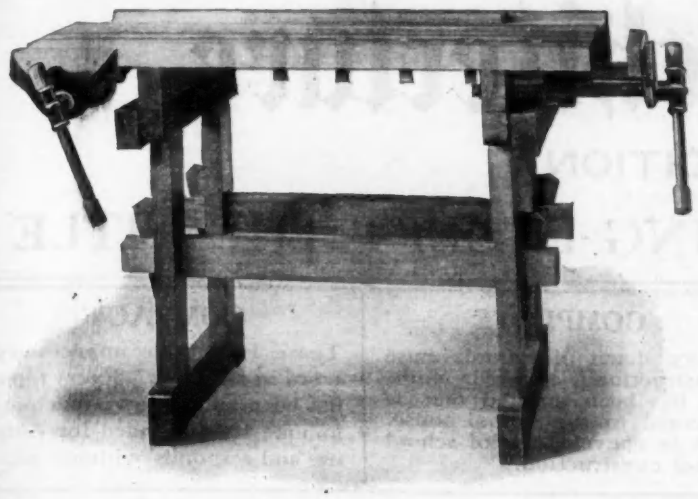

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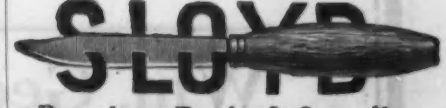

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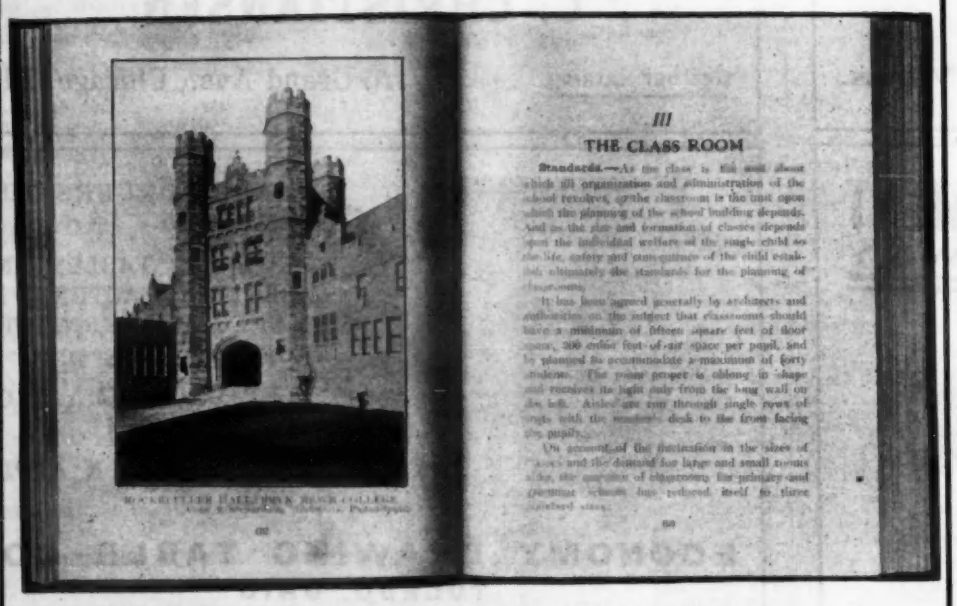

III

THE CLASS ROOM

Standards.—As the class is the unit about which all organization and administration of the school revolves, so the classroom is the unit upon which the planning of the school building depends. And as the size and formation of classes depends upon the individual welfare of the single child so the life, safety and convenience of the child establish ultimately the standards for the planning of classrooms.

It has been agreed generally by architects and authorities on the subject that classrooms should have a minimum of fifteen square feet of floor space, 200 cubic feet of air space per pupil, and be planned to accommodate a maximum of forty students. The room proper is oblong in shape and receives its light only from the long wall on the left. Aisles are run through single rows of seats with the students' desk to the front facing the pupils.

On account of the variation in the sizes of rooms and the demand for large and small rooms alike, the question of classrooms for primary and grammar schools has reduced itself to three standard sizes.

LAWS ON SCHOOL HOUSE CONSTRUCTION which have been put into force in the various states are included in this volume. Architects must know at all times the absolute requirements for every prospective building. School authorities ought to know the scope of every school building law in force in every state.

A MODEL PROGRAM FOR SCHOOL HOUSE COMPETITIONS is appended as an aid to school authorities preparing for any school building. Architects ought to secure a copy to help boards in calling for bids and planning school houses.

IT PREFACES THE STUDY OF THE SCHOOL HOUSE PAGES of the American School Board Journal in an excellent manner. Makes them intelligible and gives their study a scientific basis. Contains all those rules which a popular monthly cannot repeat without tiring its readers.

Partial Table of Contents

Accommodations	Elevators	New York Law
Air	Emergency Rooms	Obtaining Sites
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Announcements	Equipment	Physics Laboratory
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Arrangement	Fences	Playrooms
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Deafening	Library	Vacuum Cleaning
Domestic Science	Lighting	Ventilation
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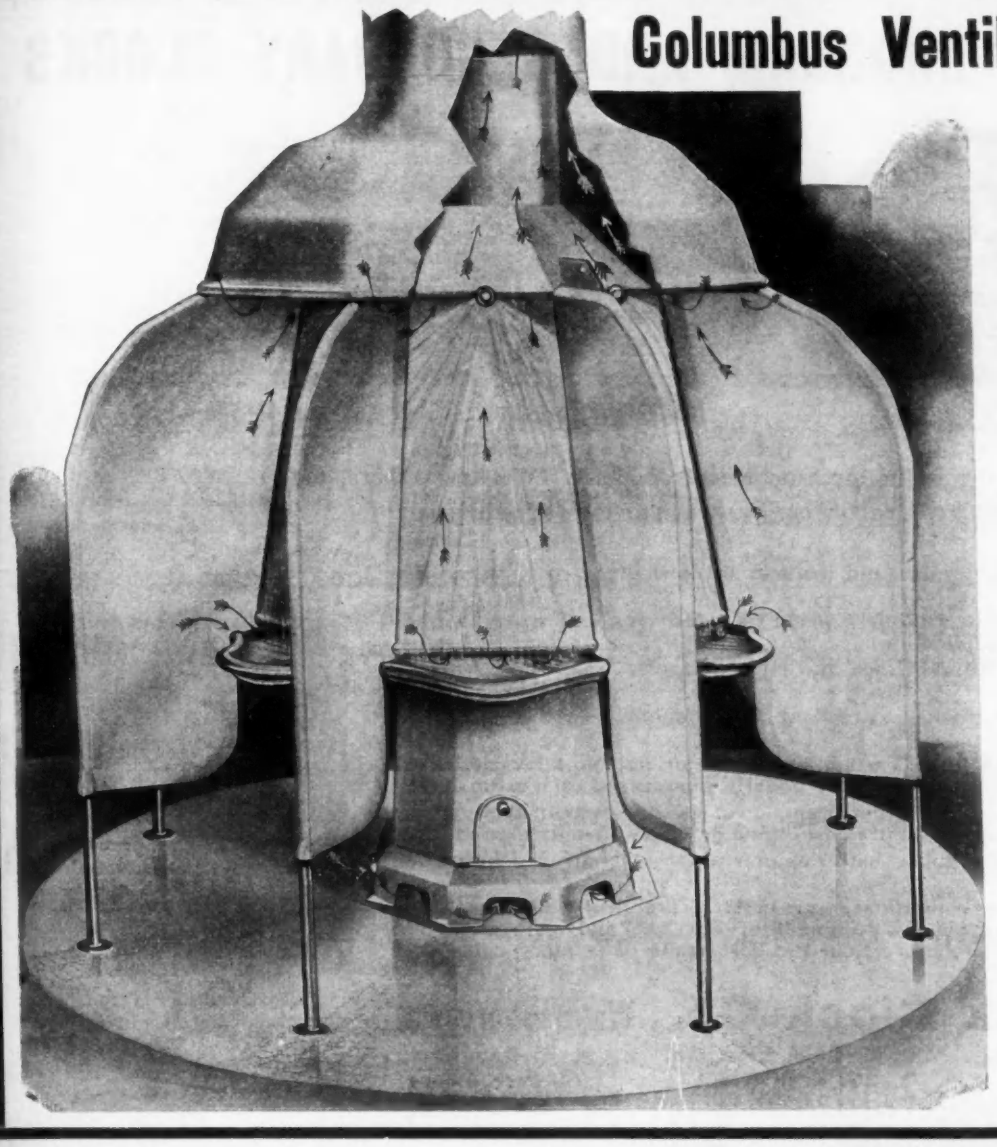

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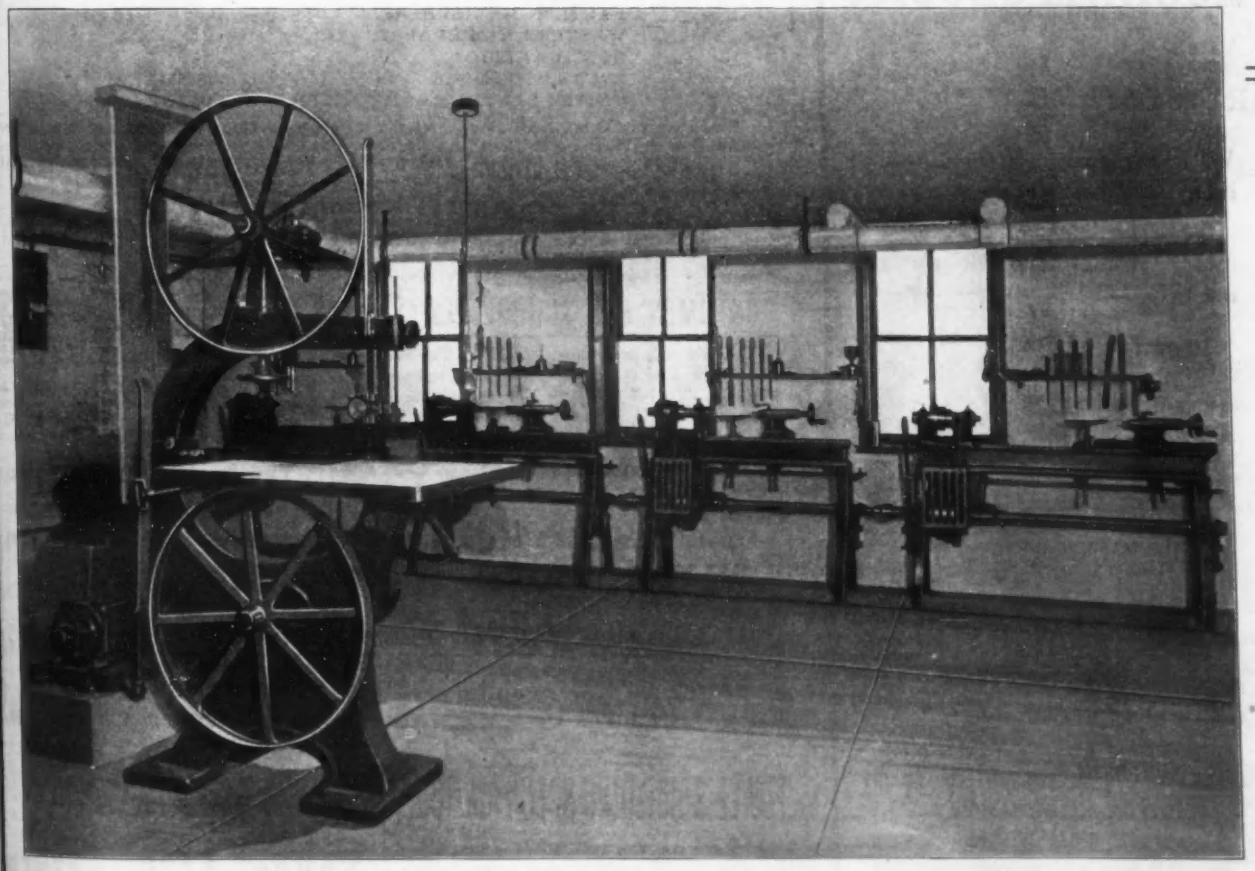

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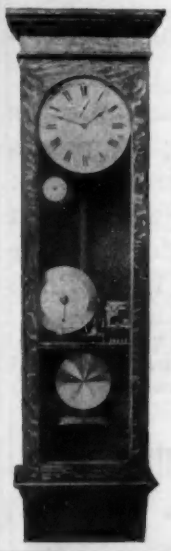

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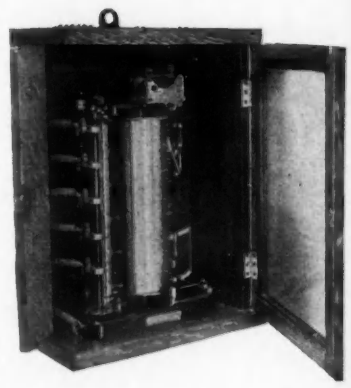

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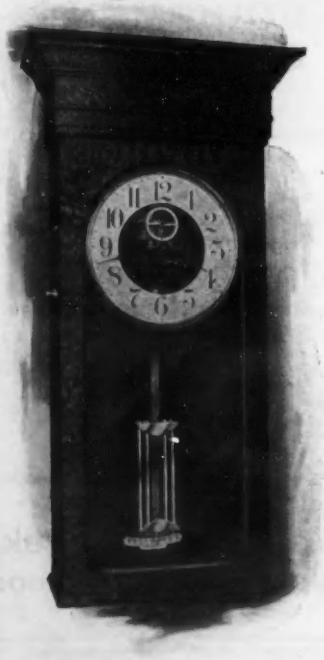

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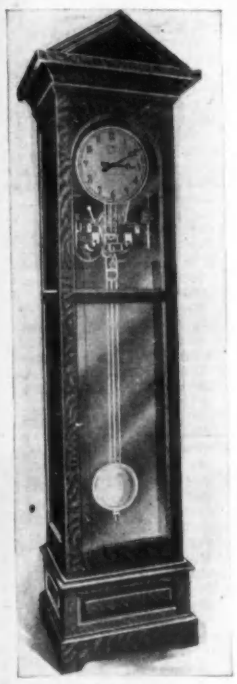

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Yours very truly,

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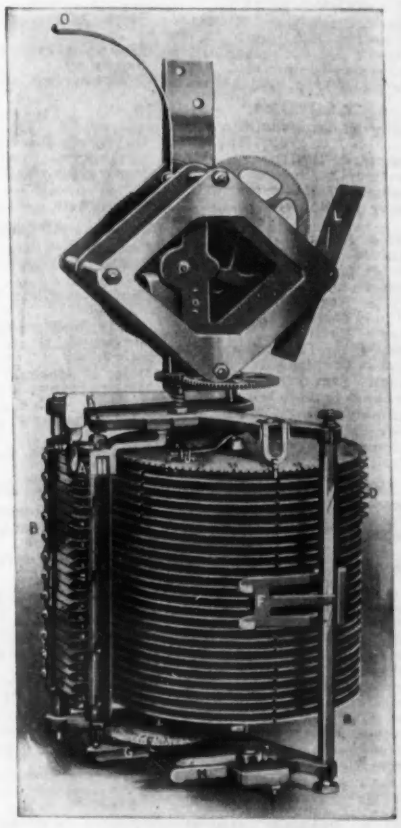

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Berry	B. D. Berry & Co.	Chicago, Ill.
Britton	Britton Printing Company	Cleveland, O.
Columbia	Columbia School Supply Co.	Indianapolis and Hamilton, N. Y.
Ginn	Ginn & Co.	Boston, New York, Chicago
Houghton	Houghton-Mifflin Company	Boston, New York, Chicago
Jenkins	Wm. R. Jenkins Company	New York City
Lee	Laird & Lee	Chicago, Ill.
Merrill	Charles E. Merrill Company	Boston, New York, Chicago
Merriam	G. & C. Merriam Company	Springfield, Mass.
Macmillan	The Macmillan Company	New York, Chicago, Boston
McNally	Rand, McNally & Co.	Chicago, New York
Newson	Newson & Co.	New York, Chicago
Palmer	A. N. Palmer Company	New York, Chicago, Cedar Rapids
Peckham	Peckham, Little & Co.	New York
Pitman	Isaac Pitman & Sons	New York
Prang	Prang Educational Company	New York, Chicago
Scott	Scott, Foresman & Co.	Chicago, New York
Simmons	Parker, P. Simmons	New York City
Silver	Silver, Burdett & Co.	Boston, New York, Chicago
Sower	Christopher Sower & Co.	Philadelphia, Pa.
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Lansing & Jones..... "
Martin's Hints..... "
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Constitution of U. S. (with notes) ..Thompson

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Cheyney's Indst. and Social History of England ..... "

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Herrick & Damon's...Scott
Copeland & Rideout's... .....Silver
Welsh's Series..... "

DICTIONARIES.

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Adler's German..... "
Cuyas' Spanish..... "
Liddell & Scott's Greek .....Ginn
Clifton & McLaughlin's French and English .....Jenkins
Laird & Lee's Webster Standard .....Lee
Webster's New International .....Merriam
Webster's Collegiate.. "
James & Mole's French English .....Macmillan
Tauchnitz's ..... "
James' German and English ..... "
James & Grassi's Italian and English... "
Tolhausen's Technological ..... "
Commercial .....Pitman

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Ele. Course in Art Instr. ..... "
Rouillon's Mechanical Drawing..... "
Text Books of Art Education (1 to 8) "
Colby's Talks on Drawing, etc. .....Scott
Normal Course.....Silver

ELOCUTION.

Fulton & Trueblood's..Ginn
Shurter's Extemp. Speaking ..... "
Hyde's School Speaker "
Russell's Vocal Culture. .....Houghton
Brown's Philosophy of Expression ..... "

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Gayley's Eng. Lit.... "
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Long's Eng. Lit..... "
Minto's ..... "
Manley's Eng. Poetry "
Manley's Eng. Prose.. "
Morley's Eng. Poetry. "
Standard Eng. Classics Series ..... "
American Poems, and Prose (2 bks)..Houghton
Bates' Talks on Lit.. "
Chief Poets Series... "
Hinchman-Gummer's Lives of English Writers ..... "
Higginson & Boynton's Am. Lit..... "
Masterpieces Am. Lit. " British Lit. "
Modern Classics..... "
Perry's Prose Fiction "
Page's Am. Poets.... "
Riverside Series..... "
Rolfe's Students Ser.. "
Richardson's American Lit. ..... "
Simond's History Eng. Lit. ..... "
Simond's History Am. Lit. ..... "
Tappan's England's Lit. "
Tappan's England's and America's..... "
Tappan's Am. Lit.... "
Bates' Am. Lit..Macmillan
Brooke-Carpenter's... "
Gayley & Young's English Poetry ..... "
Macmillan's Pocket Classics ..... "
Abernethy's Amer..Merrill
Kellogg ..... "
Maynard's Series..... "
Merrill's Texts..... "
Canterbury Classics.. .....McNally
Rand-McNally School Library Series..... "
Curry's Literary Readings ..... "
Standard Literature Ser. .....Newson
Necomer's American..Scott
Newcomer's English...Scott
Welch's Development of. .....Scott
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Silver Series of Classics. .....Silver
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Pattee's Reading Courses ..... "
Pattee's Foundations. "
Cameiot Ser. (Prose) .....Simmons
Canterbury Poets..... "
Westlake's .....Sower

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Aldrich & Foster's Ele. .....Ginn
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Internat'l Modern.... "
Lang Series..... "
Bercy's Series.....Jenkins
Bercy & Castegnier Grammar ..... "
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Churchman's Pronunciation ..... "
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Rougemont's Drill Book "A"..... "
Rougemont's Manuel de la Litterature... "
Sauveur Causeries avec mes eleves..... "
Sauveur & Lougee, Gram. ..... "
Maury-Max. Conversations .....Lee
Thieme & Effingers' Grammar ....Macmillan
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Elementary French... "
La France ..... "
Maynard's Texts..... "
French Daily Life..Newson
Newson's ..... "
Pitman's .....Pitman
Lake Fr. Classics.....Scott
Lake Fr. Readings.... "
Bordes' Ele. of..... "
Dike's Scientific Reader .....Silver
Douay's Ele. Reader.. "
Through France and French Syntax..... "
Magill's Series.....Sower

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Adam's Com'l.....Appleton
Adam's Ele. Com'l... "
Gilbert & Brigham's Physical ..... "
Frye's .....Ginn
Davis' Physical..... "
Tarr & McMurry's..... .....Macmillan
Trotter's Geog. of Com. "
Tarr's New Phy's.... "
Dodge's Series.....McNally
Rand-McNally Series. "
Robinson's Commer'l. "
Pitman's Commer'l.Pitman
Inductive Series.....Silver

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Tarr's Elements.Macmillan
Ries' Economic of U. S. ..... "
Scott's Introduction.. "
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Heilprin's Earth and Its Story.....Silver

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Beman & Smith..... "
Bailey & Woods'..... "
Grenville's Trig..... "
Taylor's Trig..... "
Smith & Gale's Anal. Geom. ..... "
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Schultze & Sevenoak's Geometry .....Macmillan
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Bradbury's Elem. Trig. ..... "
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20th Cen. Series..Appleton
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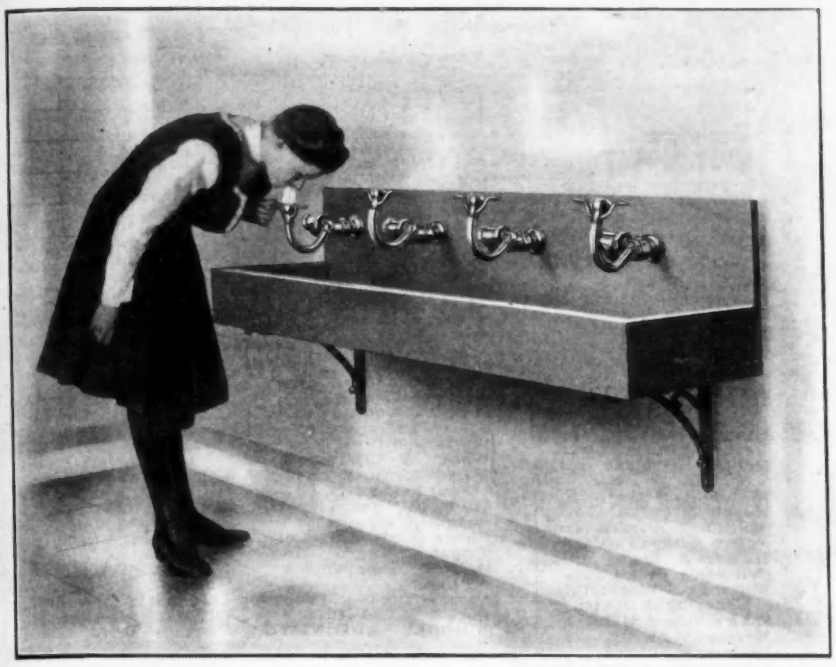

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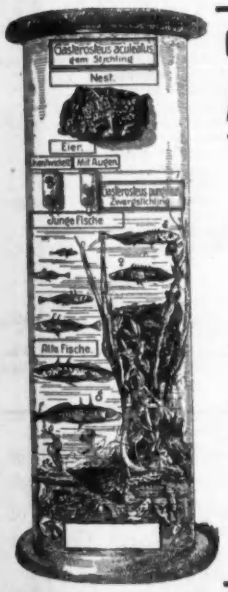

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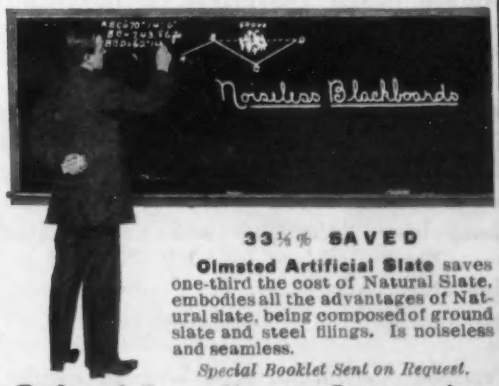

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Kentucky Library Bulletin, for the year 1909. Prepared by J. P. Culbertson and issued by Department of Education, Frankfort, Ky.

Normal School Instruction in Agriculture. By M. J. Abbey, Mayville, N. D. Paper, octavo, 32 pages. Issued by U. S. Dept. of Agriculture, Washington, D. C.

Albany Vocational School. A description of the purposes and working of the school; courses of study, daily program, etc. 16pp. Issued by State Education Dept., Albany, N. Y.

Compulsory Attendance and Child Labor Laws. Three circulars, issued by N. Y. Education Dept., Albany, N. Y. Contain, respectively, the new law, summary, and digest of old laws.

Teachers' Certificate, hand book of regulations, issued by N. Y. Education Dept. Paper, 3x5 inches, 50 pages.

New York Education Department Report. Fifth annual report of Hon. Andrew S. Draper. Two volumes, cloth, 6x9, 725 pages and 402 pages.

Report of Director of Indianapolis Truancy Department. By James L. Fieser, Indianapolis, Ind. Paper. 20 pages.

Manuscript, Dutch Records of New Netherlands. With an account of previous attempts at translation. Issued by New York State Library. Paper. 28 pages.

Courses in Cookery for Nebraska Girls' Domestic Science clubs. Issued by Department of Public Instruction. Lincoln, Neb. Paper. 46 pages.

Industrial Education. Summary of legislation concerning industrial education in public elementary and secondary schools. By Edward C. Elliott. Issued by American Association for Labor Legislation, Madison, Wis. Paper, 16 pages.

Public School Health Bulletin Number 1. Eyes and Ears. Issued by superintendent of public instruction of North Carolina, Raleigh. Paper.

Bulletin of the North Carolina Board of Health. (Teachers' edition.) Teaching Health in public schools and Medical inspection of public schools. Published by North Carolina Board of Health. Paper. 116 pages.

Washington's Birthday. Prepared by Allen J. Barwick, paper, 48 pages. Bulletin 13, issued by the State Dept. of public instruction of North Carolina. A handy manual of programs, selections and suggestions for celebrating Washington's birthday in public schools.

West Virginia Educational Directory. 1909-1910. Prepared by M. P. Shawkey, State Superintendent of schools. Paper. 143 pages.

By-Laws, Rules and Regulations of the Board of School Inspectors of the City of Peoria. Paper. 44 pages.

School Reports, Decatur, Ill. 1908-09. Paper, 6x9 in., 132 pp. Prepared by Supt. H. B. Wilson. Contains a brief summary and interpretation of the significant events of the school year, financial statement, and statistical data; announcements, suggestions and directions to teachers, pupils and patrons.

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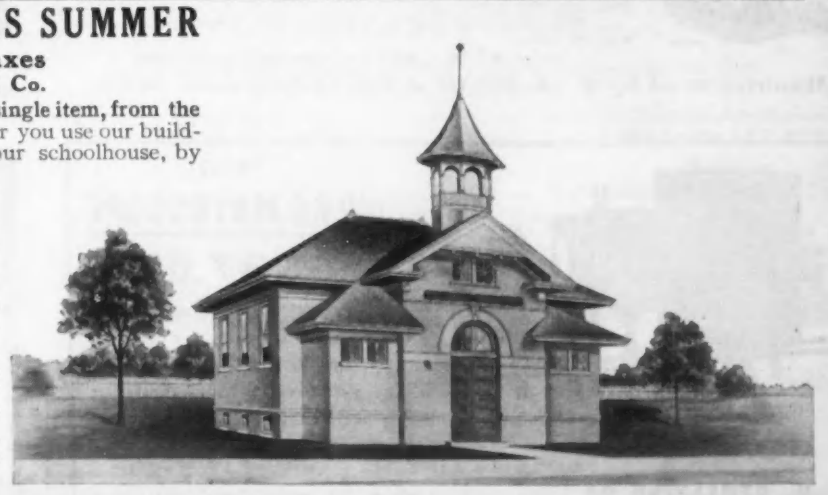

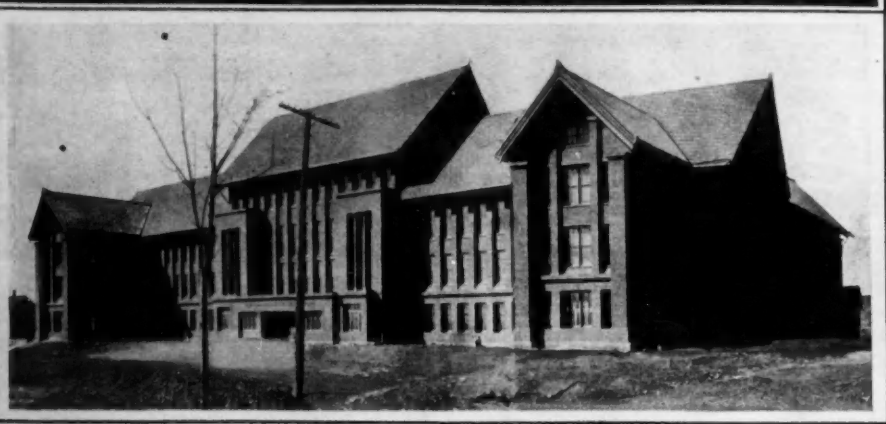

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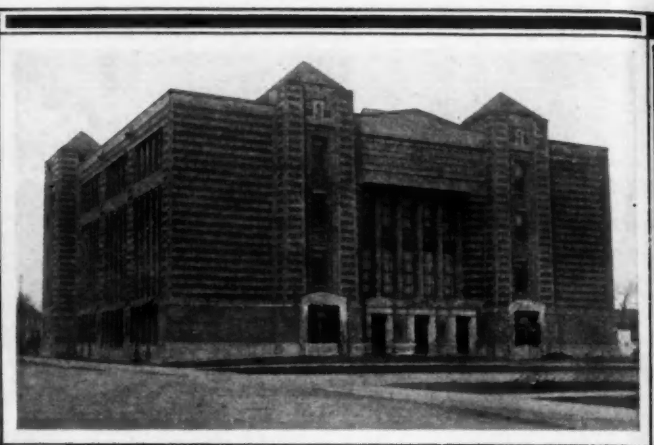

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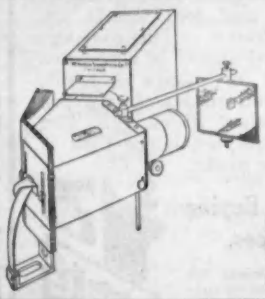

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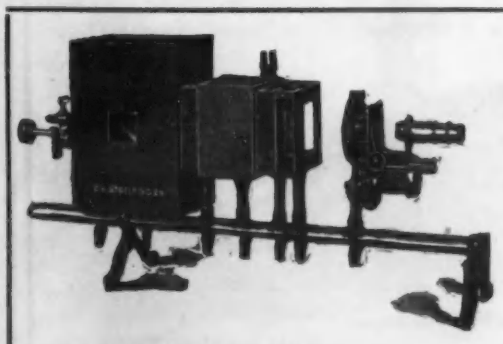

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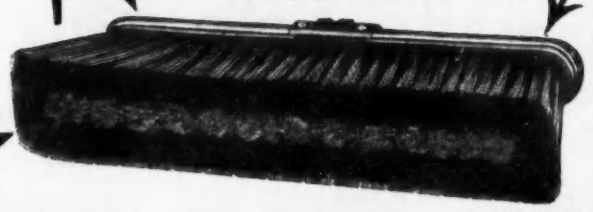

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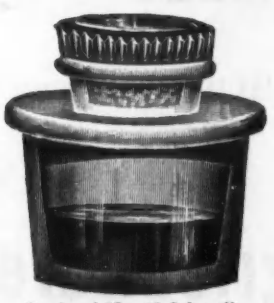

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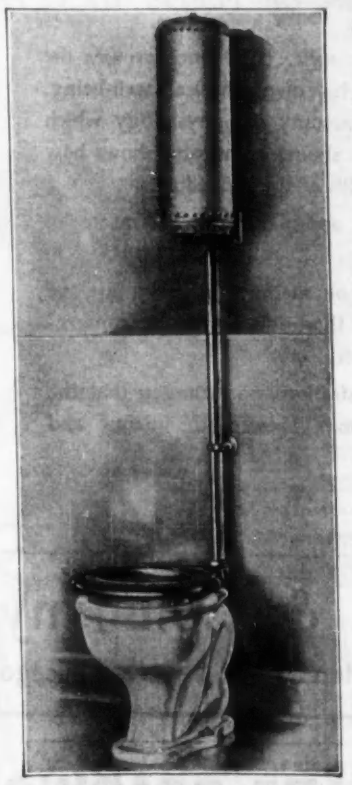

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School Board Journal

Founded 1890 by WILLIAM GEORGE BRUCE

Vol. XL, No. 4 — MILWAUKEE—New York—Chicago, APRIL, 1910 — Subscription Price $1.00 Per Year

EDUCATION'S CHOICE

—the Modern, Sanitary, Fireproof School House.

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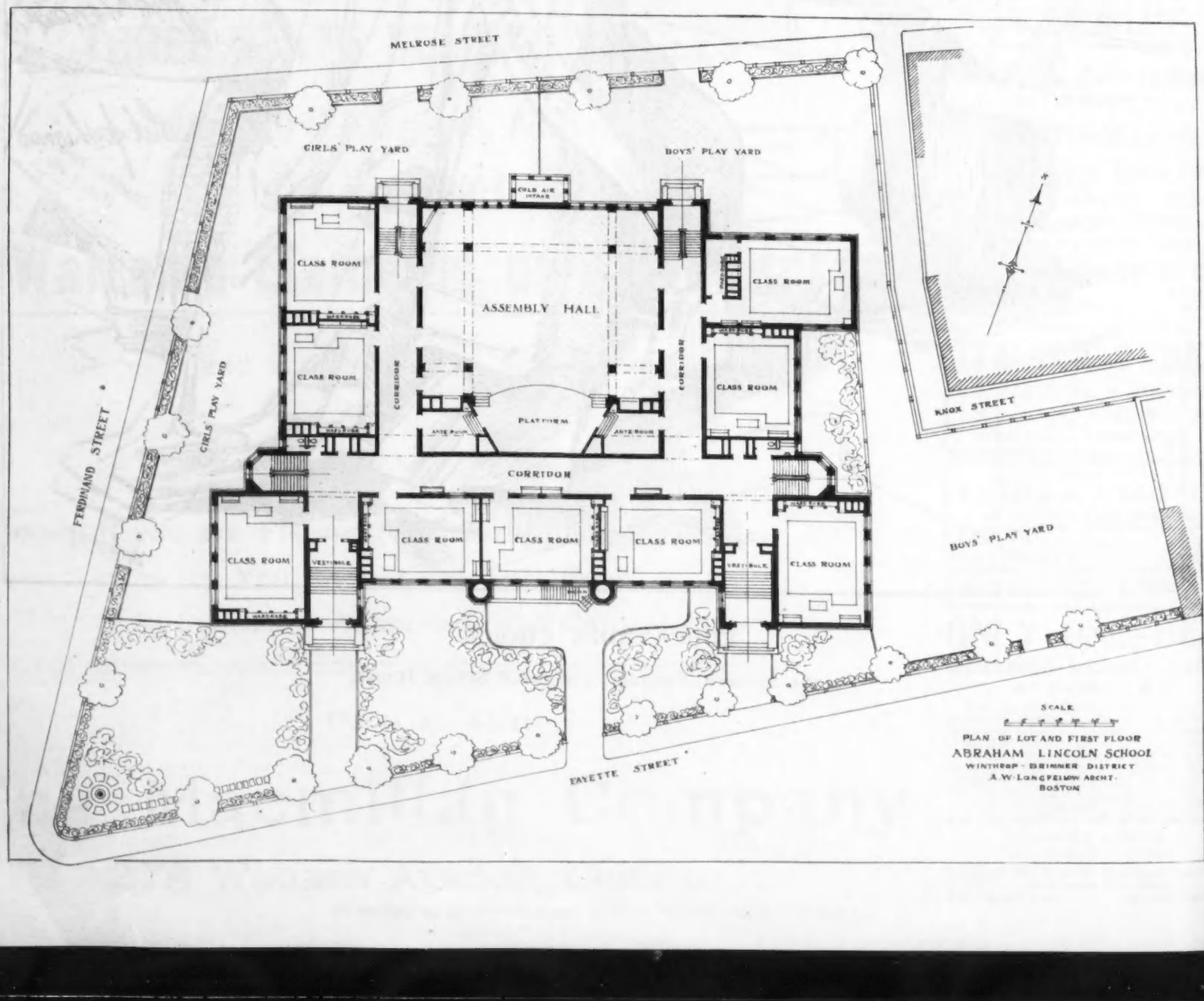
Mr. A. W. Longfellow, Architect, Boston.

ABRAHAM LINCOLN SCHOOL.

This building is intended for upper elementary classes and will contain forty rooms when completed. It occupies an irregular plot of land and represents considerable ingenuity in securing a degree of symmetry, while at the same time utilizing land so as to secure good light and ventilation. The basement of the building contains a manual training room, a cooking room, toilets for boys and girls, playrooms, a room for the school nurse and heating apparatus.

On the first floor are the assembly hall and nine classrooms. On each of the floors above the second, which is the same as the first, there are nine rooms, each placed exactly like those on the

(Concluded on Page 27)



School Architecture

By SUPT. F. T. OLDT, Dubuque, Ia.

What a storm of opposition would have been aroused a few decades ago if it had been suggested that a public school be equipped with a gymnasium in which the pupils were to receive systematic training by an experienced instructor. The wood pile then was an indispensable adjunct of every household and exercise with the saw and the ax was afforded daily. So with manual training. If the boys wanted to amuse themselves by fashioning boats or carving the benches with their knives, well and good, but the man who would have been bold enough to advocate the equipment of a woodworking shop or a machine room to be used in connection with the public school would have been considered a fit candidate for a lunatic asylum. What a joke it would have seemed to be, had some one proposed a scheme for the devotion of a part of the week to teaching girls how to sew and cook! Book learning was the function of the school. What would a young woman fresh from college, crowned with a white cap, know about household work? Domestic science? The kitchen was the place to learn culinary arts.

Conditions are different today. Housework is performed by servants who decline to conduct a kindergarten for their employer's family. Here the public school steps in and, in a measure, supplies the training eliminated from the homes through changed conditions. Though recently regarded as mere fads, manual training and domestic science have demonstrated their worth in an unmistakable manner, and are now accepted factors in the public school curriculum of every progressive city.

The gradual recognition of the child as the prime consideration in the construction of the curriculum has inspired these changes. Like recognition is now demanding more intelligent regard for the proper heating, lighting, ventilating, seating, and general comfort and attractiveness in the construction of our school buildings. What then are the details which need special attention in order that the best possible results may be secured in the construction of modern school buildings?

In the first place, as our education is affected by the architecture, our buildings devoted to the cause of education should, above all others, be noted for simplicity and dignity, in form and design. The selection of the site is of great importance; it should be in a sanitary and otherwise desirable section. The lot should be large enough to afford ample playground and grass plots with shrubbery, higher than surrounding streets and alleys with the ground sloping in all directions from the building, and at some distance from street car lines, brick paved streets and factory smoke stacks. In determining the size of the building due regard should be had for the natural increase in the district to be accommodated and for the fact that in the near future no teacher will be expected to have more than forty pupils.

The matter of excavation and foundation is of prime importance and cannot receive too close attention. The soil must be suitable for the foundation to be laid; proper provision must be made if there is any indication of quicksand or soft places. The foundation walls should be of large stone with concrete footing and of a width proportional to the weight of the superstructure. Here, more than anywhere else in the construction of the building, it is wise economy not to spare money.

No school building should be more than two stories high unless of absolute fire proof construction, and the ceilings, except in a large assembly room or auditorium, should be about thirteen feet high and made of ornamental metal plates or plastered on metal lathing. The entrances should be wide and equipped with vestibules to afford shelter in cold or stormy weather for children who may come before the hour of opening the school. All doors should open outward. Vestibule doors should be hung to swing both ways, and should have glass panels to enable teachers on duty in the halls to see what is going on in the vestibule. Every outside door should be provided with a check and spring, the latch should be removed, and in case of double doors the janitor should be compelled, under penalty of dismissal, to keep the bolts drawn during school hours. If this is done faithfully, there will be no repetition of Collinwood.

The basement should be ten or eleven feet high and well lighted. Its floors may be made with Portland cement or with a thin layer of rock asphalt on a concrete base; wooden floors may be used if laid on sleepers bedded in concrete. Those in boiler and coal rooms should be brick pavement on edge. In most schoolhouses toilet rooms are now placed in the basement. They must of course be so arranged as to effect a complete separation of the sexes. The seats should be separated by partitions. The best substance for the floors is asphalt, as all odors and stains can be easily removed with water, which is not true of wood nor even of cement. The floors in the school rooms and corridors should be double and supplied with an efficient uninflammable deafener. The under floor may be of common fencing and laid diagonally; the upper flooring should be of hard wood—maple of Georgia pine—as it is more sanitary and more easily kept clean.

The most durable and desirable roofs are slate or tile or asbestos. The last named is light and can therefore be used on many buildings which would not permit the use of slate. When the roof is flat, tin or tar and gravel may of course be used. The roof should naturally be in keeping with the general design of the building, but care should be taken to avoid an unnecessary number of angles, as they are likely to be the cause of a great deal of annoyance and expense.

We come now to a consideration of the school (or class) room where the child spends so many hours of the day. It should be well lighted, ventilated, and made attractive. There should be from fifteen to eighteen square feet of floor space for every occupant. Authorities differ as to dimensions of the room. The most approved are 28 x 32, 24 x 32, and 22 x 32, intended to accommodate 56, 48, and 40 pupils respectively. The Boston School Committee recently decided that in the buildings about to be erected the rooms must be 22 x 28, or 23 x 29, and that no room should have more than forty pupils. By lessening the width of a twelve or sixteen room building four feet and the length six or eight feet the cost of construction will be reduced greatly, but the rooms will afford very poor accommodation. With forty desks in an upper grammar grade room of this size, together with the teacher's desk, a reference table, a few chairs, radiators in side and rear aisles and perhaps a musical instrument, teacher and pupils may be able to zigzag their way in and out of the room, but I should not care to be the teacher nor should I desire my children to be numbered among the pupils. Long experience has taught me to believe that the most satisfactory size is twenty-four or twenty-five by thirty-two feet, and that the number of desks should be limited to forty or forty-two. The seating of a room merits careful attention. As the children of a grade are not of the same size, the desks should not all be of the same height. Every room should have two rows of adjustable desks—preferably the outer rows. If these cannot be secured, some relief can be obtained by placing two sizes of the ordinary desk in a room, perhaps half the rows of one number and the other half of the next size.

The proper lighting of a room is one of the most serious problems. The window area should be equal to one-fifth or one-fourth of the floor area, the windows should run close to the ceiling, and the light should come from the left side or from the left and high rear. When the light is insufficient, due sometimes to outside obstructions, relief can be obtained by the use of prism glass which throws the light to a considerable distance and so diffuses it as to cause uniform intensity throughout the room. This kind of glass costs more than the ordinary window plate, but it may save eyes, and does not cost so much as the use of artificial light through a term of years.

Blackboards, preferably slate, should be placed on the front and right side walls and should be 3½ or 4 feet wide. They should be 24 inches from the floor in primary rooms, 26 inches in intermediate, 28 inches in grammar, and 30 inches in high school. No blackboards should be placed between windows. All wall space below the blackboards and below the chair rail or plate shelf continuous with the top of the blackboard should be painted in oil. This space should really be covered with burlap and then painted. Above, they may be calcimined, rooms exposed to the sunlight in soft gray or green, and those not so exposed in yellow, frieze and ceiling in lighter tint. Busts, reliefs, and framed pictures are important features in school room decoration, but should be selected with care. Details in pictures and reliefs should be placed above the chair rail to permit inspection, and the larger pictures should be hung from a molding placed a few feet below the ceiling. The window curtains should be in harmony with the color scheme of the walls—soft bluish gray or green in the majority of the rooms, and a warmer color bordering on yellow, in rooms having north exposure; in order that there may be the desired uniformity on the outside, duplex shades may be used in the latter.

Wardrobes should be connected with the school room by two openings without doors, having outside light, and be warmed and well ventilated. They should be at least four feet wide, and the strips for hat hooks should be about four feet from the floor for primary schools and five feet for grammar schools. At the end, generally, though unwisely, opening into the corridor, a teacher's bookcase and wardrobe, may be built. The walls should be treated as those of the class room.

The corridors should be wide and made as light as possible. In a building of considerable length the light may be increased materially by placing two panes of glass about as long as the width of the window in the upper part of the wall separating the school room from the corridor. The width should be ten feet or more, dependent upon the size of the building. The treatment of the walls should be somewhat like that of the walls of rooms having a north exposure.

The number of exits and staircases in all buildings having four or more rooms should be two or more, the number depending upon

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the number of rooms. The staircases should be wide but under no circumstances circular, supplied with plain hand railing of hard wood or pipe supported by iron brackets and with the ends returned to the wall. The risers should be about seven inches with thirteen-inch treads.

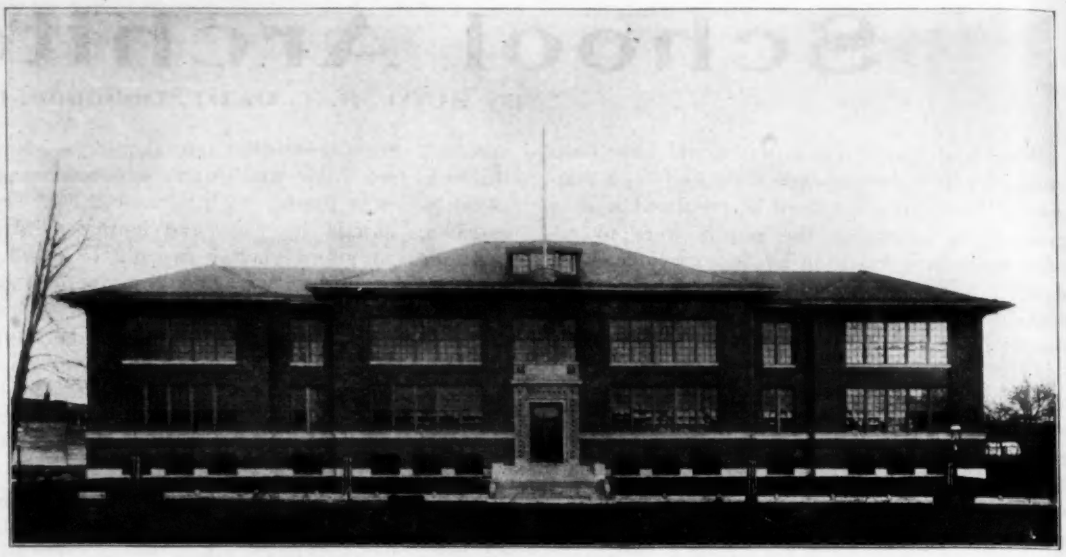
It is unnecessary to say that every modern school building should have a kindergarten room. It should be in the brightest corner of the first floor. It should have a large supply closet built in the end wall. There should also be a long box-seat of regulation height built along the wall for the mothers who frequently visit this department; if made with a few hinged lids, it becomes a convenient receptacle for many of the needed supplies. At the end of the cloak room there should be a small toilet room and lavatory for the little tots.

A manual training room should be in the basement. Provision must of course also be made for the domestic science room.

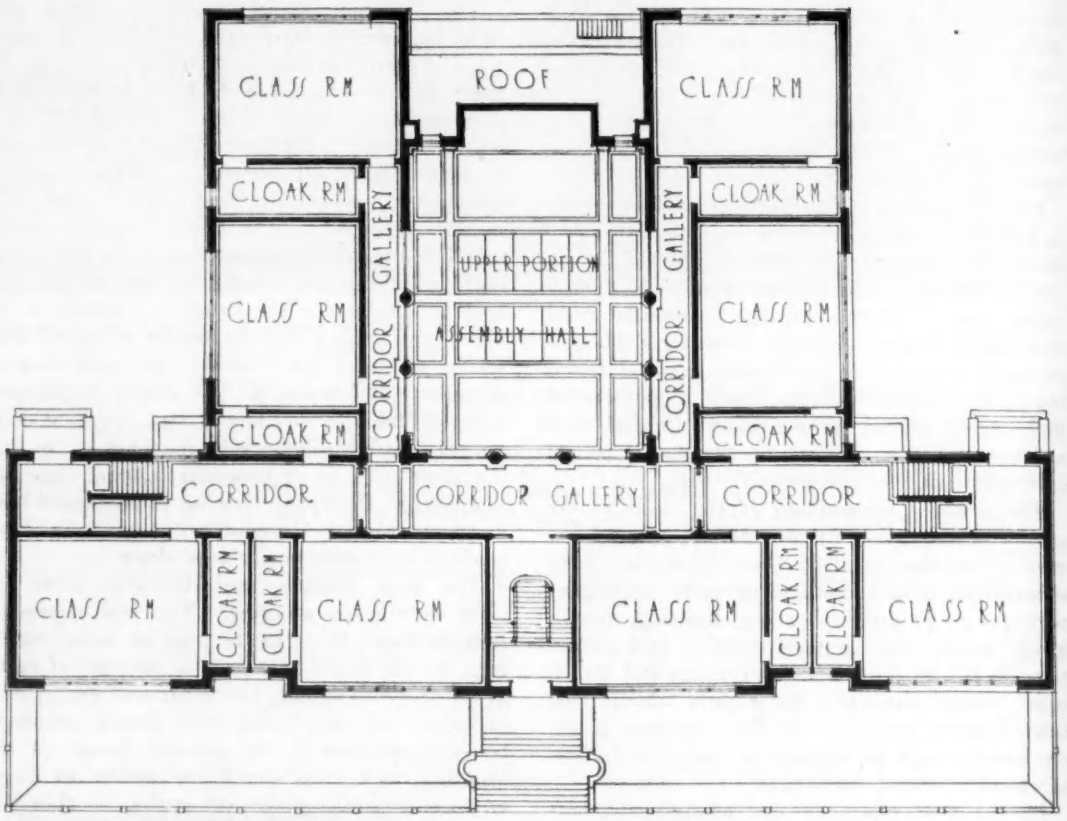
The principal's office should be where it is easily accessible from all parts of the building—perhaps over the vestibule of the main entrance. It and the boiler room should be connected with every room by telephone. Every large building should have a library and an exhibit room, place for which can be found easily on the first or second floors opposite the main entrance. Such buildings should also have a janitor's closet and a teacher's private room on each floor; also a rest room properly equipped for the care of any who may be taken ill during school hours. Then, too, there should be an assembly room or auditorium large enough to accommodate all the pupils at one time. Such room may be used advantageously for general exercises, school lectures, and occasional evening entertainments which may serve to arouse interest among the patrons and indirectly help the school in several ways. It can be made at relatively small expense by utilizing the third floor or attic, for there is always an immense amount of waste space in the attic of a large building if the roof is so constructed as to make the building appear to advantage. A far better, safer, and more convenient place, however, for this room is on the ground floor, with galleries even with the second floor. This plan, of course, is much more expensive, and there are not many boards or districts now willing to incur the additional expense. But if we cannot get it on the ground floor, let us have it in the attic. I feel confident that if used judiciously the people will soon ask not for elimination, but for greater safety and convenience.

No matter how well arranged or equipped a building may be, it does not merit rank among modern school buildings, unless due attention has been paid to heating and ventilating the same. The problem, briefly stated, is to hold the temperature of a room at 70 degrees and to give every occupant of a room about 30 cubic feet of fresh air per minute. There are three approved ways of heating a building—hot air, steam and hot water. If the first named be selected the furnace should be horizontal and of cast iron, with flues made of brick to convey the warm air to the rooms. It must not be forgotten that in order to get air into the room some must be taken out; there must therefore be vents at the floor to take out the foul and cooler air. This must enter the ventilating stack at the bottom and be forced up the same through the roof by artificial means. When steam is supplied through radiators there must also be a system of ventilating ducts to furnish sufficient air at a proper temperature. These ducts should, of course, be furnished with dampers which should be closed when no ventilation is required. The

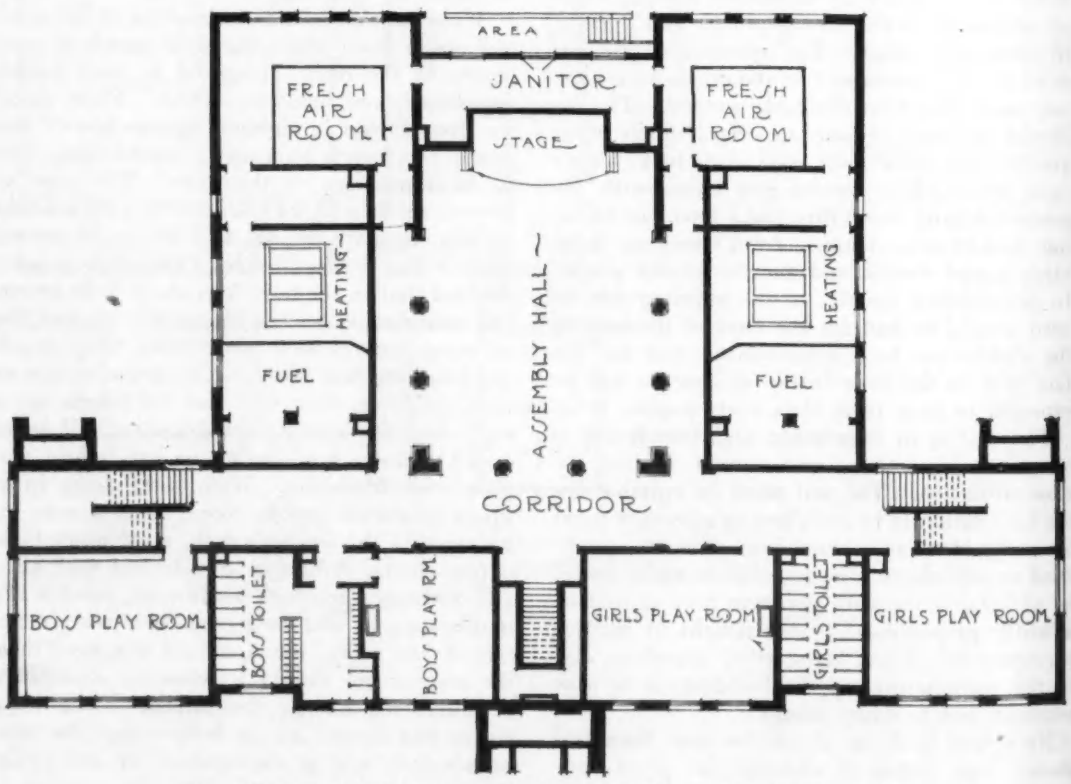
(Concluded on page 26)



HENRY D. COOKE SCHOOL, WASHINGTON, D. C.
Marsh & Peter, Architects. Cost, $103,000.



FIRST FLOOR PLAN, HENRY D. COOKE SCHOOL, WASHINGTON, D. C.



BASEMENT PLAN, HENRY D. COOKE SCHOOL, WASHINGTON, D. C.

THE CLASSROOM IN ELEMENTARY SCHOOLS.

By Frank M. Bruce.

As the class is the unit about which all organization and administration of the school revolves, so the classroom is the unit upon which the planning of the school building depends. And as the size and formation of classes depends upon the individual welfare of the single child, so the life, safety and convenience of the child establish ultimately the standards for the planning of classrooms.

It has been agreed generally by architects and authorities on the subject that classrooms should have a minimum of fifteen square feet of floor space, 200 cubic feet of air space per pupil, and be planned to accommodate a maximum of forty students. The room proper is oblong in shape and receives its light only from the long wall on the left. Aisles are run through single rows of seats with the teacher's desk to the front facing the pupils.

On account of the fluctuation in the sizes of classes and the demand for large and small rooms alike, the question of classrooms for primary and grammar schools has reduced itself to three standard sizes:

A. 22 x 32 feet; 40 pupils, 8 rows, 5 each.
B. 24 x 32 feet; 48 pupils, 8 rows, 6 each.
C. 28 x 32 feet; 56 pupils, 8 rows, 7 each.

Rooms 13½ feet high are arranged in this manner to give every pupil an easy view of the teacher and blackboard. Vice versa the arrangement gives the teacher perfect control of the children with all in view at a glance. The form allows adequate lighting, heating and ventilation. In like manner the sizes allow the grouping of rooms near staircases, and guarantee regular corridors. The width allowed between desks is usually twenty to twenty-four inches. Between the blackboard and its adjoining row of desks 3 to 3½ feet should be allowed. Thirty-two feet is the maximum length of classrooms.

It is a noteworthy fact that each of the larger cities of the country has developed its own standards. Thus in Boston the standard size of classrooms has been fixed at 23 by 29 feet in the clear and not less than 12 feet high. In buildings having no grades above the fourth, rooms 22 by 28 feet are permitted. Either size will accommodate forty-two single desks.

In New York City, classrooms have been arranged on the German standard: 22 feet wide, 30 feet long, 15 feet 6 inches high, in the clear; 40 pupils.

Grade rooms in Chicago public schools have, until recently, measured 26 feet 6 inches by 33 feet. At present the standard is 24 feet by 34 feet; for a maximum of 48 pupils.

The St. Louis standard requires that classrooms be 24 feet by 32 feet 6 inches, with not less than 12 feet clear story height. The maximum seating capacity is 48 pupils.

In Detroit, 24 feet by 32 feet is accepted as correct.

In Baltimore all schoolrooms are planned to be 26 feet by 32 feet with 12 feet 6 inches to 13 feet ceilings.

In Cleveland two standard sizes have been evolved: 24 feet by 32 feet and 26 feet by 32 feet.

In Philadelphia the standard classroom measures 24 feet by 32 feet by 13 feet.

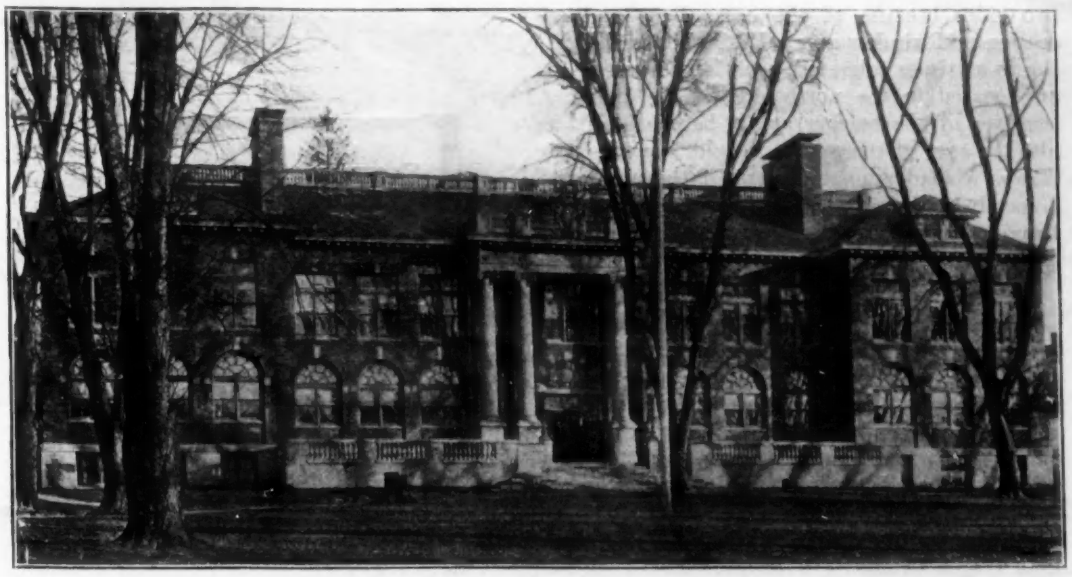
The Seattle standard classroom is 25 feet by 32 feet and 13 feet story height.

The Lighting Problem.

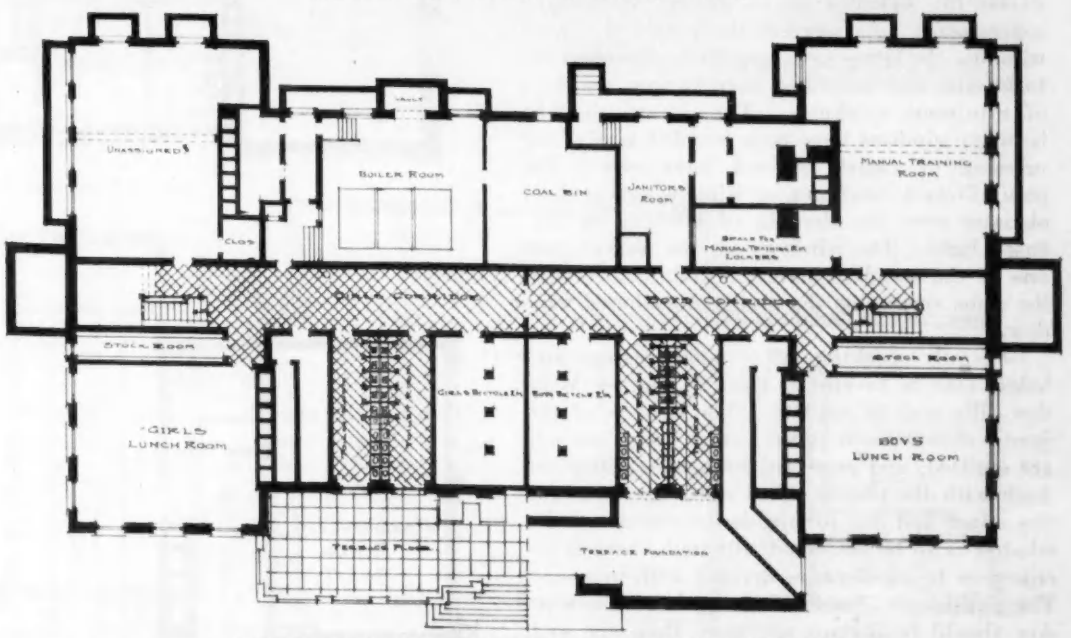
The importance and the difficulty of the subject of lighting is self-evident. Primarily, light must come to classrooms without obstruction or interruption. It has been said that every pupil ought to be able to see the sky from his desk. A German authority asserts that 50 per cent. of the floor space should be open to the sky. Under ordinary conditions, the rule that adjoining structures should not be nearer than twice the height of the school building is safe. This cannot be maintained in crowded cities where buildings are high, but it is binding on the location of trees and like.

The admission of light to the classroom, after its pure obtainance, is next important. Accordingly the window area should be one-fifth of the floor space, assuring a desk illumination of fifty candle metres. Where rooms are wider than twenty-two feet and the light is brought in from one side only, the window area should be at least one-fourth of the floor space. An authority suggests as a good rule the provision of at least 15 square metres (1.6 square feet or 233 square inches) of window surface for each pupil.

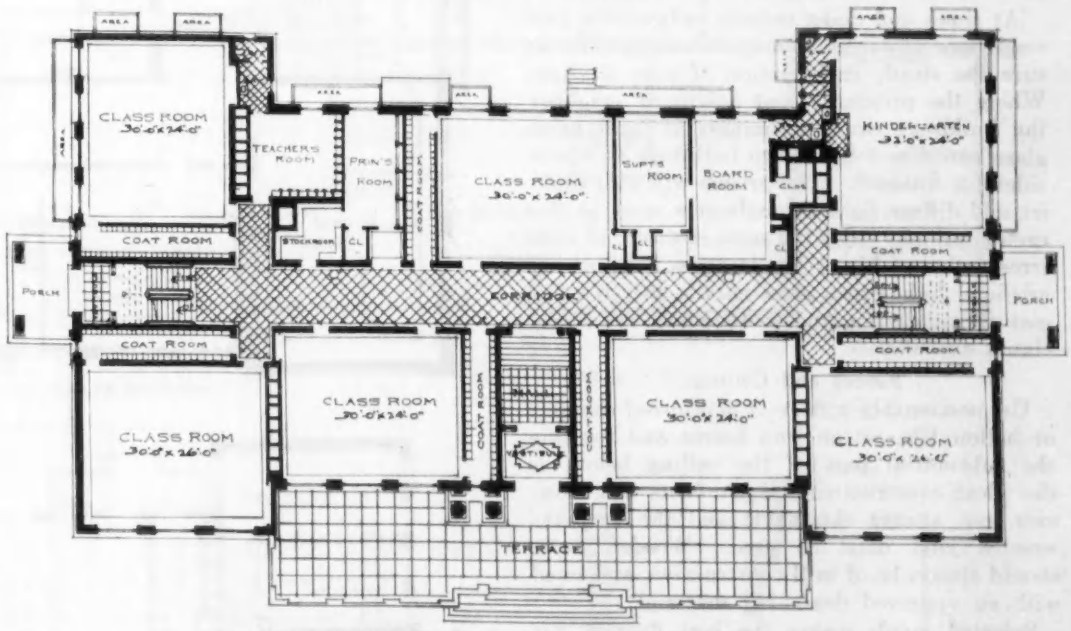
Light should come to the pupil from one side only, never the front, and pass over the left shoulder. It ought never come from three or



FRANKLIN SCHOOL, ENGLEWOOD, N. J.
Taylor & Mosley, Architects, New York, N. Y. (See description page 35)



BASEMENT PLAN, FRANKLIN SCHOOL, ENGLEWOOD, N. J.



FIRST FLOOR PLAN, FRANKLIN SCHOOL, ENGLEWOOD, N. J.

two sides because of the cross light and excessive cold window area. While bilateral lighting is at times tolerated, especially when rooms are located in the north side of the building, the eyes of the teacher are to be considered as also the eyes of the pupils. Light from the rear throws a shadow on the work of the pupil and must always be softened in favor of the teacher. Provided care has been exercised, light may enter from one or groups of windows.

Fenestration.

Windows and their number depend on the rules laid down for the lighting of classrooms. Thus window space should be one-fifth the area of the floor space and in unfavorable light one-fourth of the floor space. They should always be placed to the right of the teacher while facing a class, square top in shape, and set about three feet from the floor level. To facilitate the diffusion of light, windows should extend to within six inches of the ceiling.

During recent years, architects have introduced the so-called group system of lighting schoolrooms. As against the regularly placed windows the latter have been drawn together into groups, and separated only by iron mullions of minimum thickness. Thus heavy shadows between windows have been avoided as also the crossing of clearly defined light rays. The plan allows a maximum of window surface and obviates even the thought of bilateral or diffused light. The windows can be worked into one of the standard styles of architecture with the same success as the evenly distributed window.

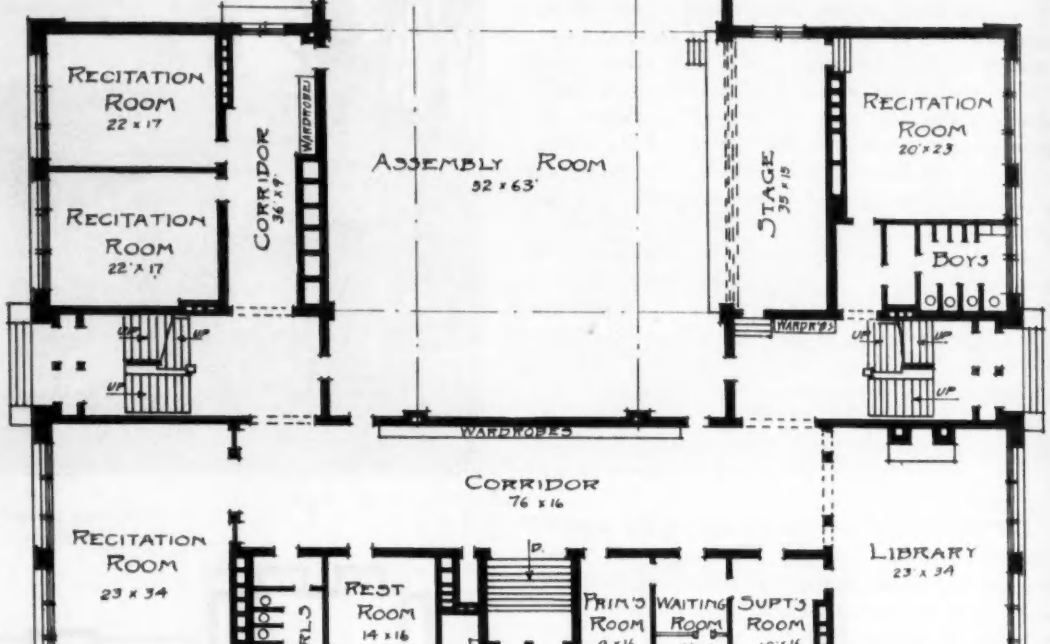
Generally speaking, all window casings and ledges may be beveled at least 40 degrees. Window sills may be omitted. The corners of the jambs should be rounded, where wood casings are omitted, and protected by a metal strip set flush with the plaster. But one large pane for the upper and one for the lower section of the window is to be preferred, although there is no objection to small panes divided with muntins. The pupils' seat farthest removed from a window should be distant not more than one and one-half times the height of the windows.

At times and under certain unfavorable local conditions prism glass may be employed to assure the steady introduction of pure daylight. Where the proximity and height of neighboring buildings cause a dimness of light prism glass can direct light into buildings to a considerable distance. The prisms will also equalize and diffuse light throughout a room so that each pupil may enjoy the same intensity of light irrespective of his or her location. As against artificial light prism glass entails only the first cost of installation and consequently not a continual expenditure.

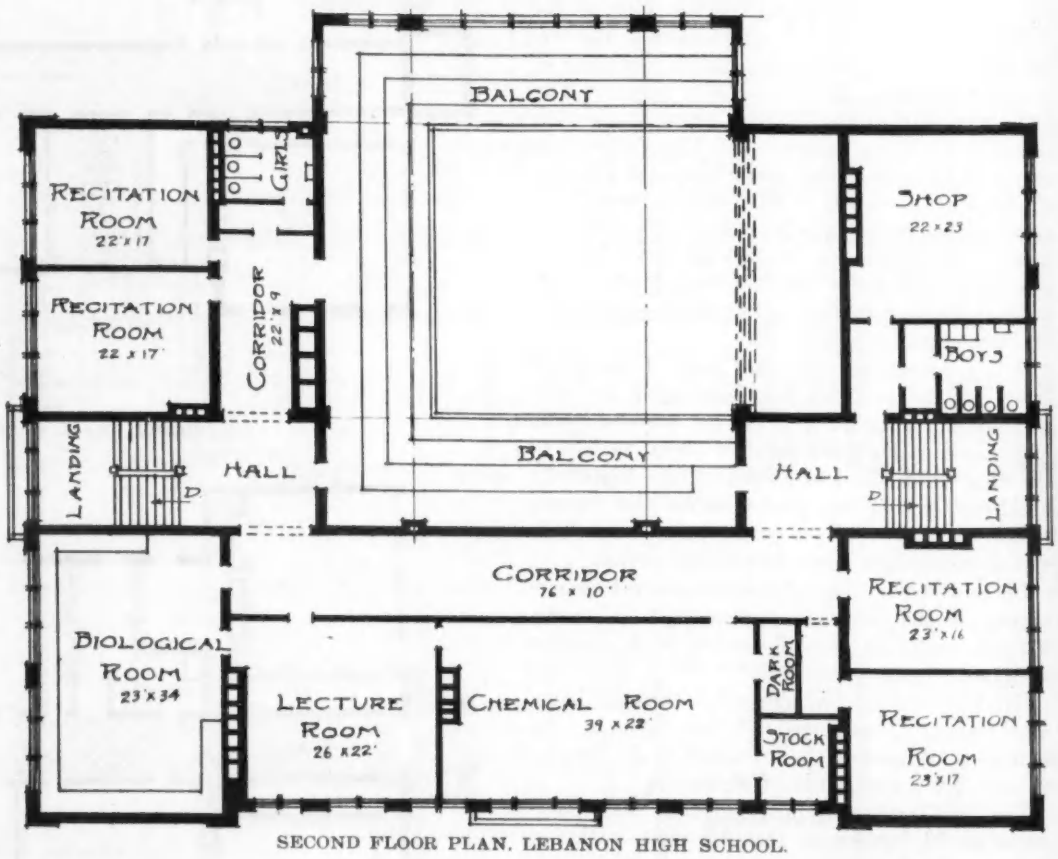
Floors and Ceilings.

Unquestionably a floor of reinforced concrete or hollow tile, set on iron beams and forming the substantial part of the ceiling below, is the ideal construction. Such floors are, however, not always obtainable and the ordinary wooden joist must be used. Wooden floors should always be of mill construction, and lined with an approved deafening material.

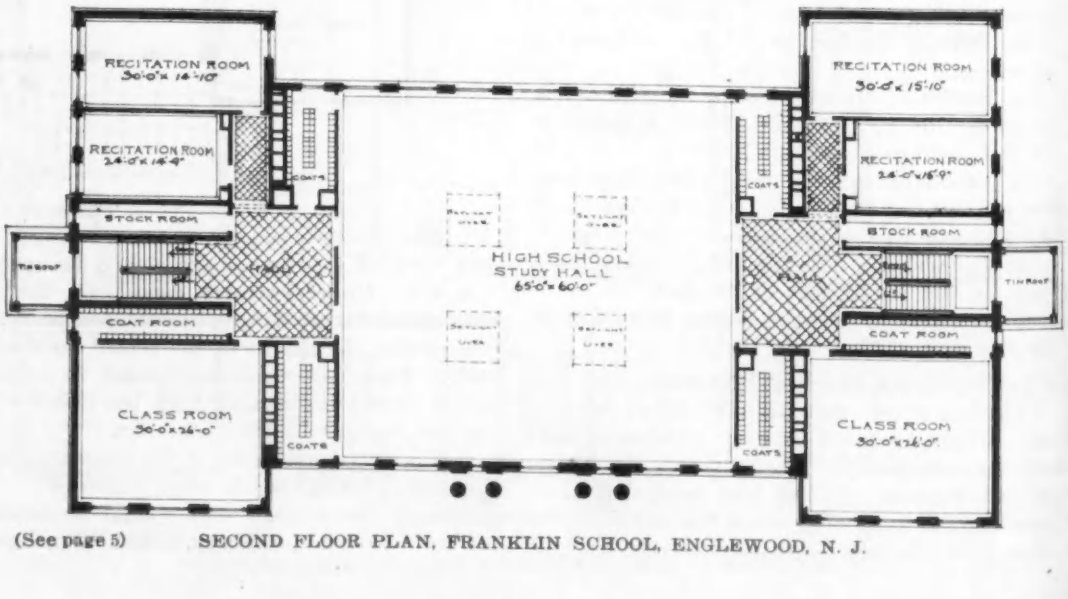
Selected maple makes the best flooring for schoolrooms. This, if matched, blind nailed, and laid with as few joints as possible, will prove very satisfactory. It is sanitary and clean and can be swept without trouble. Georgia or Florida pine, if comb-grained, stands second to maple, but must likewise be of selected stock. In specifying Georgia or Florida pine, care should be taken to limit the width to two and one-half inches or a very poor floor will be obtained. Flooring of rooms above cold air chambers should be carefully protected with a double thickness of non-conducting deafening quilt to



FIRST FLOOR PLAN, LEBANON HIGH SCHOOL.



SECOND FLOOR PLAN, LEBANON HIGH SCHOOL.



(See page 5) SECOND FLOOR PLAN, FRANKLIN SCHOOL, ENGLEWOOD, N. J.

prevent a transmission of cold to the floor above. Where the floor meets the wainscoting or base board, the juncture piece can very readily be curved concavely to facilitate cleaning and prevent an avoidable accumulation of dirt.

The same rules for fireproofing and sound deafening which are laid down for floors and walls, should be maintained for ceilings. A hard plaster, such as adamant, imperial or rockwall, applied to metal lathing is to be preferred. Wooden ceilings are frequently used, but cannot be recommended. Metal ceilings are good and can be obtained in simple and ornamental designs. Where these are not introduced a smooth, well finished plaster surface should be obtained. In Massachusetts the law provides that the entire basement ceiling be plastered on metal lath. Ceilings should not be less than 13½ feet in height. Their color should be preferably a creamish gray.

The Placing of Doors.

All classroom doors should primarily assure convenience and reliability for use in calling and dismissing classes. Again they should be absolutely under the control of the teacher, preferably near her. One door will give a teacher better control over a class than two. A second door will necessarily open upon benches and cause undesirable room crossing. With the wardrobe at the rear of the room the door is best placed near the front in the open space between desks occupied by the teacher and pupils respectively.

Doors should be about three feet wide, hung in a substantial frame, be strong and durable. They should be of the ordinary height, with a knob convenient to the child's grasp. While many authorities demand that doors swing outward, classroom doors, which should be under the control of the teacher in case of a panic, may safely open into the room. What loss of life has occurred in the schools of the country has been due to the fact that teachers were unable to control the rush of children from rooms during a panic.

German school authorities believe that doors opening into corridors add to the safety of a classroom. The door is hung on the wall in classroom and swings out into the corridor. The door frame instead of standing square, as ordinarily found, is set on the bias away from, and in the direction in which the door will swing. It must be remembered that school walls have become very wide on account of the number of ventilating ducts and other piping which is placed therein. Thus the angle between the wall and the door is reduced to 50 degrees, while only one-half of the door projects beyond the wall line. The best practice in the United States requires that the door be hung so that it can be swung back against the corridor wall, and altogether out of the way.

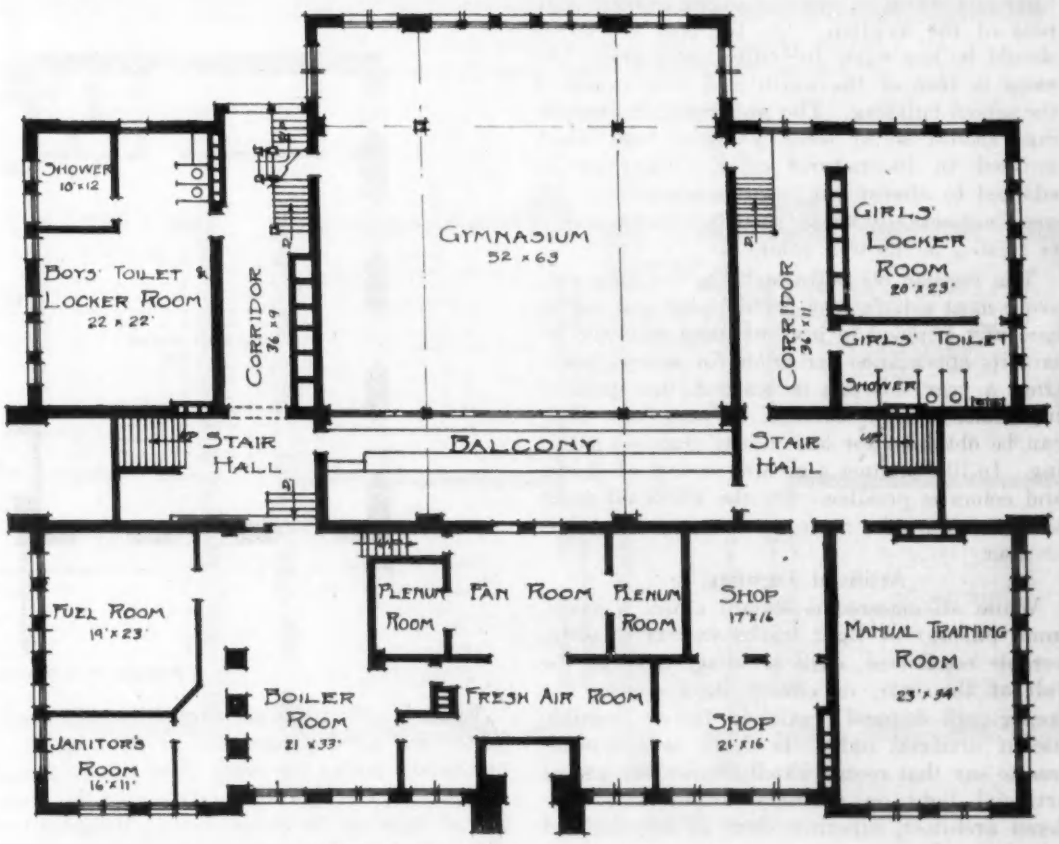
Quarter-sawed oak makes the best material for doors. This when well oiled and varnished wears almost indefinitely. A plate can be placed about the door knob to prevent smearing, and one at the base will protect the wood from accidental kicks. A glass panel in the upper part of the door is a confession of a poorly lighted corridor. This should be avoided where possible. Whenever tolerated frosted glass should be preferred to the ordinary transparent pane. Transoms are unnecessary and disturb the efficient working of the ventilating system.

Wall Treatment.

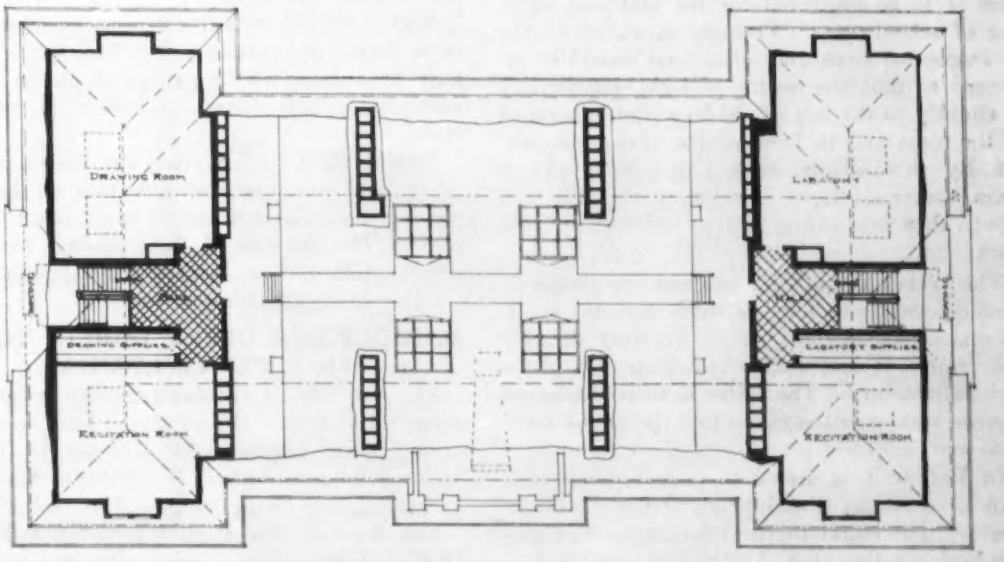
If the lighting of a schoolroom is important the reflection and diffusion of light in the room is of equal importance. The standards of correct wall coloring are based entirely upon fatigue as experienced both by teacher and pupil and the possibility of illumination on unfavorable days. Again the standards exclude

(See description page 35)

NEW HIGH SCHOOL, LEBANON, IND.
Herbert L. Bass & Co., Architects, Indianapolis, Ind.



BASEMENT PLAN, LEBANON HIGH SCHOOL.



(See page 5)

THIRD FLOOR PLAN, FRANKLIN SCHOOL, ENGLEWOOD, N. J.

colors known to be light absorbent and include colors extensively found in nature.

White, the presence of all light, is considered hygienically bad; it tires the eye by its glare and almost uninterrupted strength. Black, the absence of all color, absorbs light and is equally bad. Opticians tell us that the eye has been made to fit colors equally distant from white, the presence of all color, and black, the absence of all color. Gray, a mixture of black and white, should therefore be the basic color for the tinting of every wall in the schoolhouse. It should, however, only be the basic color. Combinations of all other colors of the spectrum can be effected without the necessity of employing as such the cold and uninviting color of gray.

The ceiling should be kept light, but never white or chalky. It is never touched by the rays of the sun, except by reflection from a mirror or other polished surfaces. Consequently, in the majority of cases it will receive diffused light only. A tint of white, such as cream color, which will aid in the downward diffusion of light, is therefore most desirable. The spectral colors, orange, red, violet, yellow, blue and green, should never be used for ceilings without intense whitening.

On the north exposure, colors can be made light and warm on account of the natural coldness of the location. On the east the colors should be less warm including more gray. The same is true of the south and west rooms of the school building. The woodwork and mouldings should be of some accepted hard wood, finished in its natural color. This can be adapted to almost any color combination. All space not actually needed for blackboards should be treated in the wall color.

The regular oil paint will, in the long run, prove most satisfactory. This must and can be carefully stippled to prevent gloss and will retain its appearance and color for several years. Once a year this can be washed, thus producing almost a new surface. Water color tints can be obtained for less money than oil painting. In like manner a greater variety of shades and colors is possible. On the whole oil paint is more desirable, more sanitary, and in time cheaper.

Artificial Lighting.

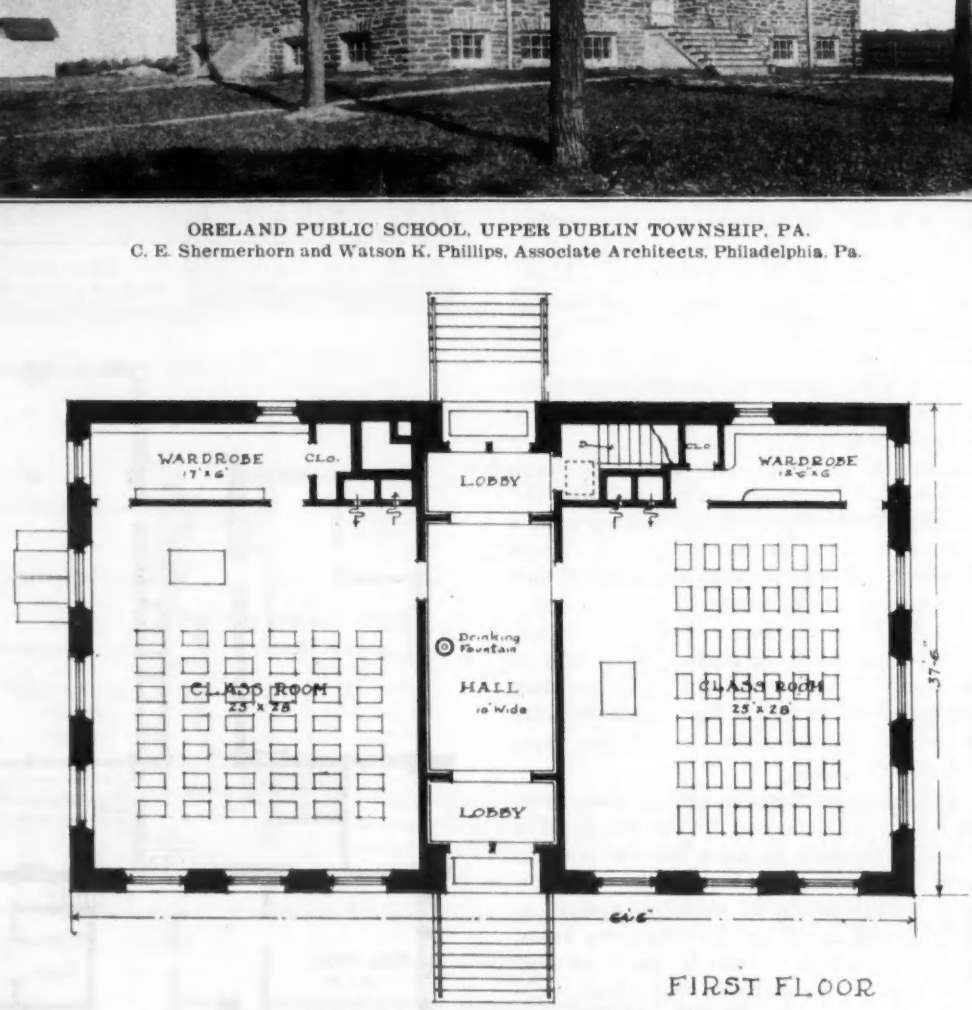
While all classrooms should admit a maximum amount of light under extremely unfavorable conditions, dark or misty days in the fall of the year, or cloudy days during the spring, will demand provisions for the possible use of artificial light. It is, of course, needless to say that rooms which require the use of artificial light on ordinary bright days condemn architect, superintendent of schools, and school board.

Light which assures a maximum of whiteness is to be preferred for the artificial lighting of schoolrooms. Fixtures must, of course, be suspended from the ceiling and should be arranged so that the center of light distribution is slightly to the left of the longitudinal center of the room and in front of the transverse center. By this means, each pupil will have a main source of light slightly to the left and front, thus obviating heavy shadows on his work.

The Welsbach light for gas and the Tungsten incandescent lamp for electricity give the whitest and strongest light. Both are very delicate and frail, but last sufficiently long and prove very satisfactory. The latter is to be preferred because it does not contaminate the air by combustion.

In Boston it is aimed to provide each desk with a minimum illumination of two foot-candles or light equal to the illumination of two standard candles at a distance of one foot.

ORELAND PUBLIC SCHOOL, UPPER DUBLIN TOWNSHIP, PA.
C. E. Shermerhorn and Watson K. Phillips, Associate Architects, Philadelphia, Pa.



FLOOR PLAN, ORELAND PUBLIC SCHOOL.

English authorities are agreed that 300 candle power for 1,000 square feet of floor space, or one candle power for every three square feet, is correct. A German authority places the standard of lighting for classrooms at 10 metre candles. By this he understands that the source of light be equal to ten normal candles at a distance of one metre.

Lights should never, unless very strong, be more than eight feet above the floor level. They may be augmented by prismatic globes which concentrate and distribute rays very successfully.

During the past few years the theory of diffused light has prompted reflection to the ceiling and subsequent diffusion to all parts of the room. The amount of light needed for such illumination can be judged when it is remem-

(Continued on Page 25)

SCHOOLS FOR UPPER DUBLIN TOWNSHIP, PENNSYLVANIA.

The two schools illustrating this article are examples of practical economy They were designed along simple colonial lines by C. E. Schermerhorn & Watson K. Phillips, Associate Architects, 430 Walnut street, Philadelphia.

The Mathias Sheeleigh school erected near Ambler, Pennsylvania, originally was to have been a one story building, as the board had need for only three rooms. It was found to be less expensive in the long run to raise the roof and build a second floor, and leave it unfinished, than to make such an expensive change in the future. In the face of considerable opposition from some of the taxpayers, this was done, and the wisdom of it is now apparent, for although the building has been in use less than three years, the first floor rooms are crowded and they will soon have to finish one or more of the second floor rooms.

The classrooms are 24 feet 1 inch by 27 feet 4 inches, large enough to accommodate forty-two pupils. The wardrobes are connected with the classrooms and hall so as to permit of ready access, and are ventilated, the lower panels of hall doors being omitted to allow the air to circulate.

The main stairway is divided where it enters the basement, the boys and girls being thus separated. A large play room is provided in addition to the usual mechanical equipment. There being no sewerage system, and as cesspools were impractical, the dry closet system was adopted. The building is heated by a fan furnace system, the fan being run by a gas engine; and was installed by the American

Heating & Ventilating Company. The second floor plan is practically a duplicate of the first floor.

The general contractor was Daniel W. Sperry, 1305 Arch street, Philadelphia. The total cost of the building, including heating, was $21,258, and it will cost about $3,200 to finish the second floor.

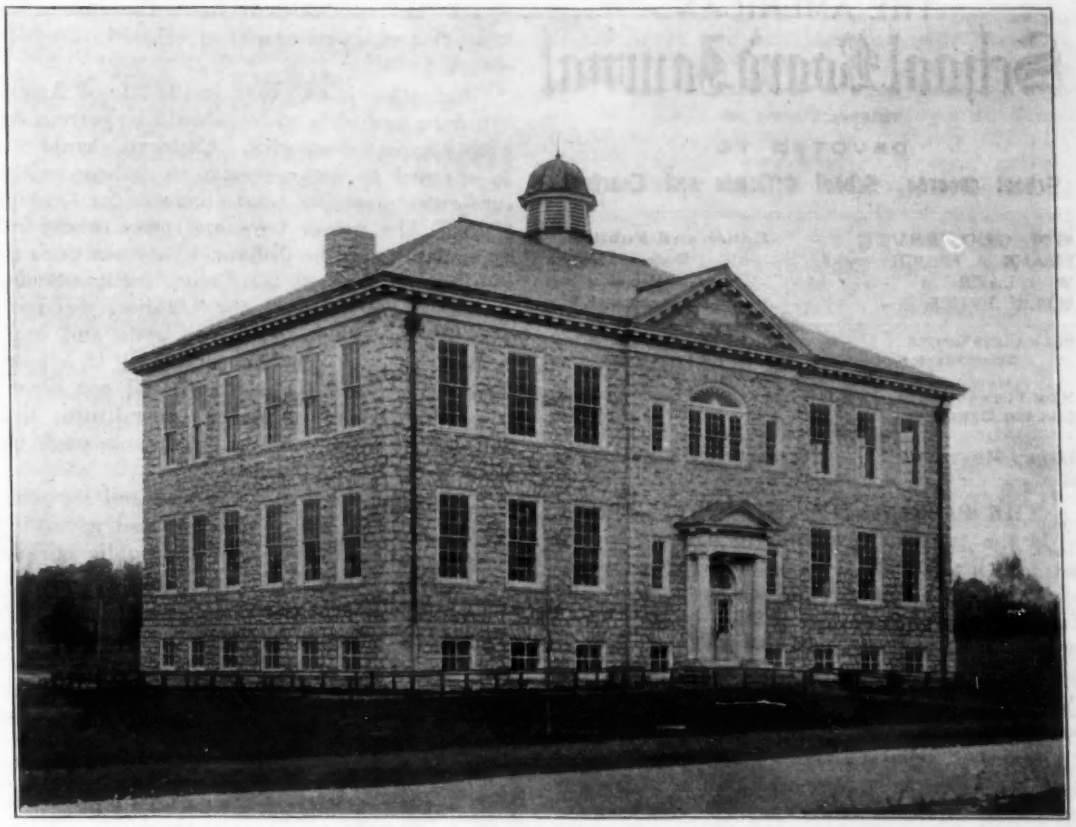
The school erected for the same township at Oreland, Pennsylvania, contains two rooms; when additional rooms are required they will be erected in the rear of the present building. The rooms are 25 feet by 28 feet, and will seat forty-two pupils. A wide hall gives convenient means of ingress and egress, and the vestibules prevent draughts.

The school is situated on high ground and is subject to high winds, so it was thought best to recess the entrance doors so that the children would have no difficulty in opening them.

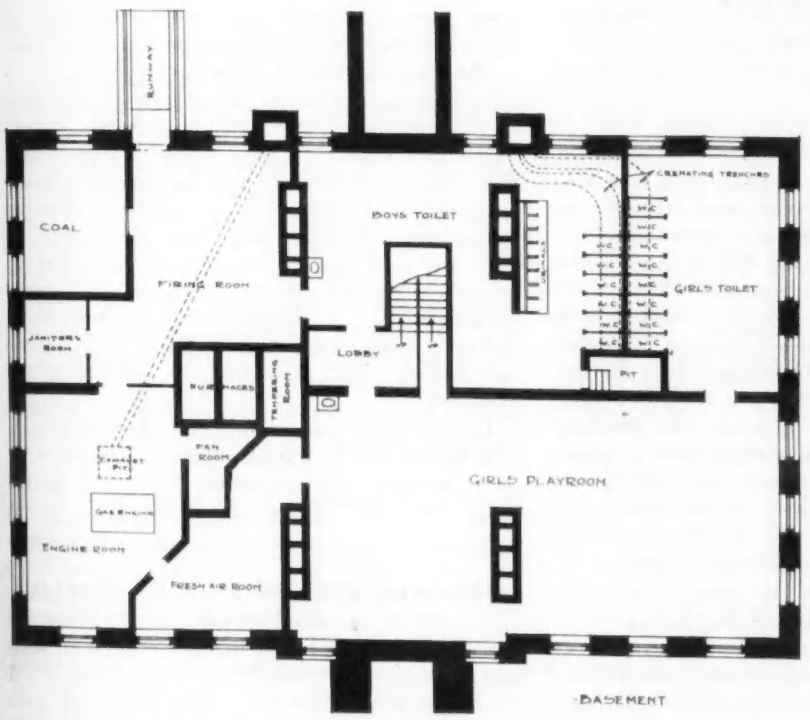
The teachers' closets in the wardrobes have shelves resting on ratchets and cleats, so that the shelves may be adjusted to suit the books. The roof is covered with "Century" asbestos shingles, a comparatively new product.

The building was constructed by Henry Specht, Jr., Willow Grove, Pennsylvania, and the heating and ventilating system was installed by the James Spear Stove & Heating Co.

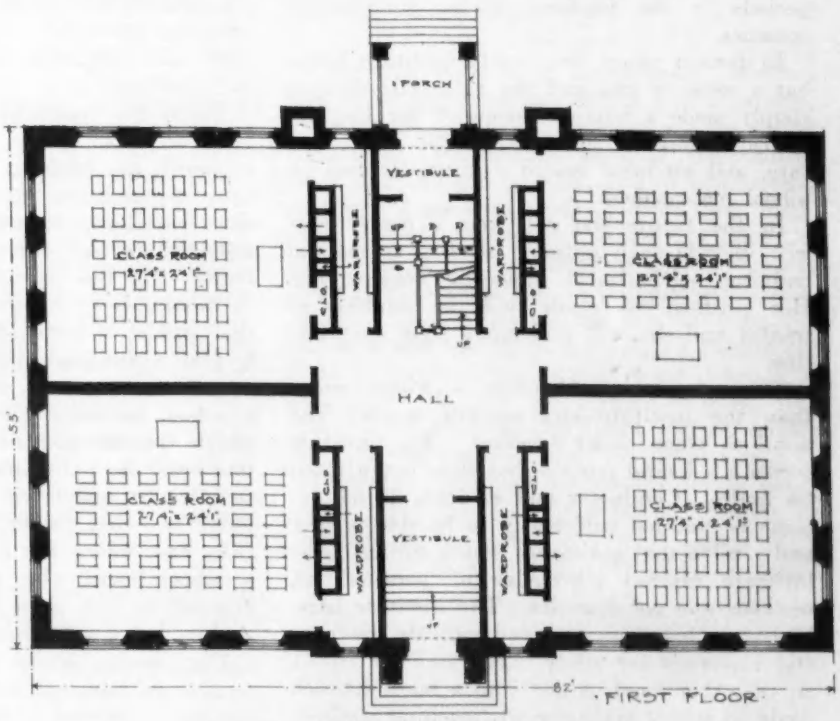
The total cost of the building, including heating, was $6,760.



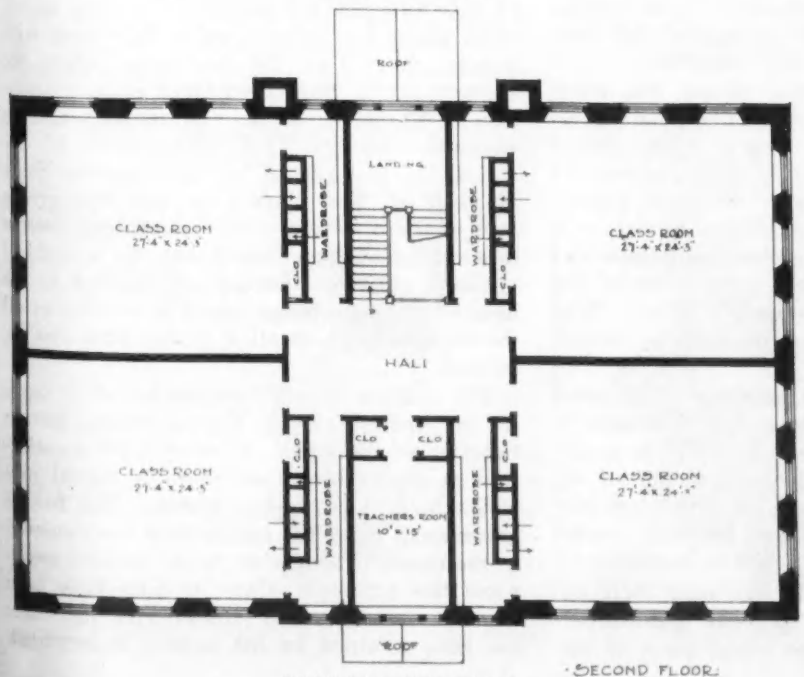
MATHIAS SHEELEIGH SCHOOL, UPPER DUBLIN TWP., MONTGOMERY COUNTY, PA.
C. E. Shermerhorn and Watson K. Phillips, Associate Architects, Philadelphia, Pa.



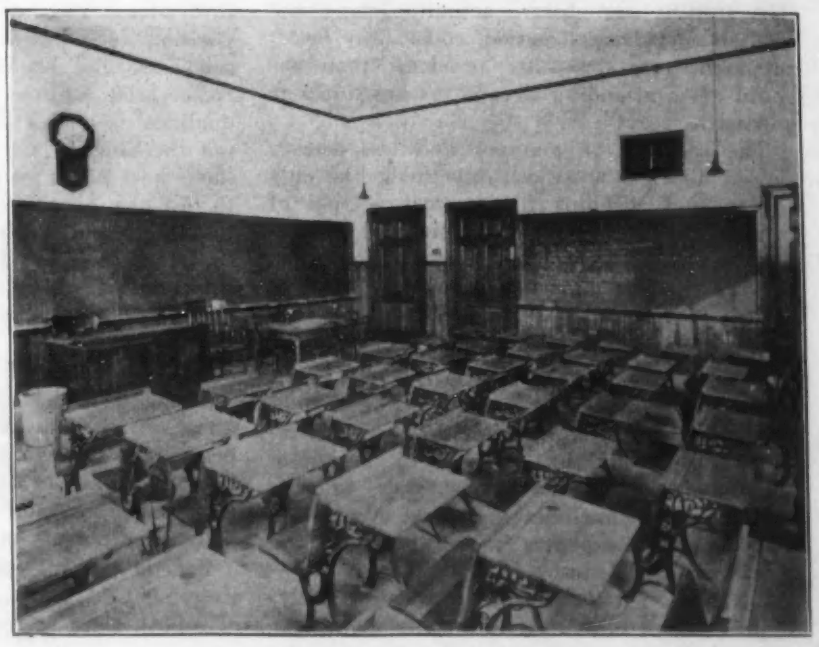
BASEMENT PLAN.



FIRST FLOOR PLAN.



SECOND FLOOR PLAN.



TYPICAL CLASSROOM.

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THE PASSING OF THE INSTITUTE.

Is the teachers' institute to pass away just as the little "red" schoolhouse of yore has disappeared? There is every indication that in the populous states of the north central section of the United States they will be historic in a few years. In Wisconsin and Minnesota they will soon be replaced by the summer schools for teachers held in the county training schools. Where such an institution does not exist, two or more counties are combined in a centrally located high school. The splendid buildings of the state normal schools will be thrown open for six weeks' periods to the teachers of the surrounding counties.

In former years the county institute lasted but a week or two and the little schoolma'am simply made a hurried review of her English, rushed through a bit of arithmetic and literature, and attended ten or a dozen lectures on school management.

In the future she will take a course that will include such optional studies as manual training, agricultural, domestic science, etc. Her professional study will be doubled or trebled and she will undergo a rigid examination.

The summer school offers a wider course than the institute and permits teacher and pupil to come closer together. The institute serves a splendid purpose but it is not without its faults. Conductor and students do not become acquainted sufficiently to be able to give and receive that assistance which springs from intimate mutual knowledge of personalities, methods and peculiarities. The institute barely gives a few principles and indicates methods and materials for study. The summer school, on the other hand, enters into a more detailed study of school management, teaching methods and devices, grading, courses of study, etc. The student can observe actual teaching and can, in a six weeks' period, come away better prepared to grapple her problems than she could after attending five or six institutes in successive years.

The institute in younger and less densely settled districts must continue to be the only professional stimulus for a great portion of country teachers. In Wisconsin and Minnesota, at least, its passing marks a long step forward in the progress of teaching toward the dignity of a profession.

EXTRAVAGANT GRADUATION.

The president of the board of education in Reading, Pennsylvania, estimates conservatively, that the graduation exercises in the public schools of that city cost, last year, $20,000. In this sum he includes the social events and their incident expenses which preceded the awarding of diplomas. Is it a wonder, therefore, that he led the board to resolve, recently, to prohibit all class entertainments and other social functions and to limit the commencement festivities to simple exercises in the high schools?

Graduation is an event in the life of American boys and girls which should be surrounded with pleasant memories. Children should not be exposed to the necessity of selling tickets for entertainments and dances for raising funds. The poorer boys and girls should not be made to feel the difference between their resources and those of their more fortunate companions. Opportunity for invidious comparisons in dress, flowers, showy gifts and other extravagances should be minimized, if not entirely suppressed. Parents should not be exposed to such unnecessary expenditures that they will hesitate sending children through the last year of the high school.

The school board of every city and town has a duty to perform in guiding and governing the graduating exercises of the public schools. It may not be desirable or necessary to legislate on the matter. But an understanding with superintendent and teachers and carefully established public sentiment will usually meet any difficulty that may arise. Plain, simple festivities, full of the democratic spirit of the public schools are the solution.

THE SCHOOL SECRETARY.

The office of school board secretary is an important one in the administrative scheme of city schools and the duties to be performed are of a character that will tax the capacity, foresight and ingenuity of an executive mind of no small power.

Where the organization of a school board is planned upon correct lines, the secretary is virtually the business manager of a corporation, representing an investment in real estate, buildings, furniture and material often approaching and exceeding the million dollar mark. He has payrolls amounting annually to thousands of dollars. He is entrusted with the conduct of large affairs and must frequently plan a financial and building policy for the schools for years in advance. With all this, a school secretary has none of the freedom which the manager of a commercial corporation has. He is hampered right and left by restrictive or mandatory laws whose spirit and letter he must follow. He is subject to the rules and orders, the interests and caprices, of a school board who are in many cases not disposed to look upon him as an executive coworker, but a subordinate.

The present is the day of the trained executive in business life. In school administration, so far as it concerns the pedagogical aspects, we have long insisted upon trained professional men, whose equipment for their position includes not only preparation of a scholastic and professional nature, but experience and address, and mental and moral qualifications of a high degree. Why should not the same be required in a like manner of the school board secretary? We have learned to see the expediency of high standards in selecting and retaining teachers, principals and superintendents. Why not apply some of the same methods to the secretary's office? Why continue politics and partisanship and friendship as the basis?

A legal status for the secretary or business manager of school districts is desirable in every state. It might be well to fix the qualifications, methods of selecting, tenure of office, and dismissal of these important officials. Provisions guarding against political considerations, nepotism, etc., would be desirable.

For the earnest officials who have their advancement at heart, a national organization of school board secretaries might prove of immense benefit. It could be patterned after the organization of the National Society of Board of Education Designing Engineers or after the Department of Superintendence of the National Education Association. There are a number of men in the United States who could lead such an organization to success and to a wide field of usefulness.

RETAINING THE BALANCE.

It is interesting to observe the causes which frequently elevate men to the chairmanship or presidency of school boards. Personal popularity, ability upon the floor and length of service are the chief reasons for honoring a member with the chair. Often, too, partisanship or acceptability to several factions or political organizations lead to the election of an otherwise mediocre candidate for the honor.

The real qualifications required are thus often overlooked in making the selection. Even a strong member sometimes makes a confused chairman. An able member whose judgment in committee is excellent, whose remarks in a meeting are timely and to the point, will lose his temper and display unfairness or favoritism.

One needs but to attend the meetings of a number of school boards to meet a variety of undesirable presiding officers, men who become angry or excited in time of trouble and who, instead of maintaining a proper mental balance, and thus adding to the peacefulness of deliberations, rather aggravate members and confuse parliamentary procedure.

A chairman must be, above all things, calm and fair-minded. Thorough knowledge of parliamentary procedure and of school board rules, and quick, fair action, will facilitate ordinary business as well as heated debate. Motions should be watched closely and entertained at the right time and in the right manner. Speakers should be held strictly to the question under consideration. A suggestion, here and there, will ease a situation and, if made in a courteous manner, will command the respect of the members.

The secretary can, in all parliamentary matters, be of help to the president. A quiet word on a mooted point, a quick reference to the rules, etc., will make the chairman's duties easy.

FEDERAL SUPERVISION OF PUBLIC SCHOOLS.

Should there be a federal department of education with a cabinet officer at its head? A resolution to endorse the establishment of such a cabinet position has been under consideration of the National Education Association at various times, but appears not to have met with general favor. In the discussion before the Department of Superintendence at its convention in March, it was held unnecessary and an encroachment upon the prerogatives of the states. It was argued by such men as Supt. Maxwell of New York City that the giving over of the direction of the educational system to a cabinet officer would be to make a political machine of it, as the cabinet member at the head of the department would be subject to all the changes to which other cabinet positions are subject.

The conduct of public schools has at all times in the history of the United States been a function of the state. In every state constitution at the present time there is liberal provision for a public school system. The federal government in all the assistance it has extended to the cause of education, seems to have recognized this principle, since its gifts have been made to the states and no authority over them has been retained by the general government

Besides the various land grants that have been made most valuable, aid has been rendered the cause through the bureau of education. It has gathered and disseminated much valuable information and scientific data upon all sorts of educational subjects. It has given inspiration to the cause of education everywhere by its work and through the men who have stood at its head.

At the beginning of the nineteenth century there was no such thing as a system of public education. Now there are schools within reach of practically every child in the land. Nor has this growth stopped short of a complete system, including secondary schools, colleges and universities. In spite of the modern tendency to concentration, the important characteristic of the elementary and secondary schools is control by the local communities. They are supported entirely by taxation. Their cost is the largest single item in the tax budget, yet that item is most willingly and cheerfully met.

It is hardly possible that any of the members of the National Education Association contemplated any departure from the present government of the schools in seeking to raise the commissioner of education to the cabinet. Their idea has been to give the bureau larger and wider influence in carrying on its present work. Undoubtedly, there is much room for development and progress in this direction.

PRESENT PROBLEMS IN SCHOOL CONSTRUCTION.

It may safely be stated that the larger problems in school architecture and hygiene have been solved so far as their basic principles are concerned by a generation which is past. The present is concerning itself with the general adoption of systems and methods which were established in the late eighties or early nineties of the last century.

The present problem in schoolhouse construction is in the refinement of details of finish so as to make the schoolrooms healthful in the light of newer discoveries in preventive medicine and bacteriology. Discussing this topic, Edward F. Stevens, a well known architect, writes in the Boston Transcript:

"The question has been asked of me, why the details of finish which are to be found in every modern hospital are not applied to modern schoolhouses, and why the same care and thought to prevent the spread of disease in the hospital should not be exercised in the planning of the schoolhouse. There is no reason why the same provisions should not be made; in fact, when one stops to think of it, the actual need for hygienic finish and detail is greater in the schoolhouse than in the hospital. In the latter the persons and the clothes are clean, while in the schoolroom, the precise opposite is true, and germ carriers and producers are increased. In the hospital the architect tries to eliminate all projecting surfaces and finish, all thresholds, and all sharp angles. Why should not the same be done in the schoolhouse?

"The conditions as pictured by this trained observer are that the wood floor with its thousands of cracks, the moulded or even the plain architraves, the transom bars, the picture mouldings, the blackboard ledges and bases, the sheathed wainscot or painted burlap and the panels of the doors are lodging places for dust, and in that dust there are almost certain to be germs waiting only for a slight movement of the air to send them off on their mission to find some susceptible subject. Under these circumstances is it any wonder that the schoolhouse helps the spread of the infection? If one will run his finger along the transom-bar of any well-kept public building, or private house, for that matter, the finger will be black with dirt. But if the door and window frames were set in the same line as the plaster, the transom-bar made the same thickness as the transom, and the door made without panels, there would be eliminated from the room any projecting surface upon which dust might accumulate. If the baseboard were flush with the wall, there would be no projection, while this board could be curved at the floor and there would be no sharp angle there out of reach of broom or mop.

"The schoolroom needs picture mouldings, for decorations in the way of pictures form an important part in the influence of the schools on the pupils, and these cannot be hung from any system of set nails or hooks. This would prevent the changes and additions that are desirable. So that a picture moulding ought to be nearly as essential in the schoolroom as the blackboard. And it is true that this moulding is a great gatherer of dust. But even here a special metal groove may be sunk into the wall, affording the convenience of the moulding and the minimum of dirt. For the floor, the architect suggests what is known as battleship linoleum, which in the vessels of the navy receives the hardest kind of treatment. It is firm yet elastic, and will wear better than wood. It has no cracks and can be cemented to the concrete construction without the necessity of any wood floor whatever. This form of floor has been used for years in the English hospitals and today is being introduced into the newer American ones. The hardware and fittings should be perfectly plain and of a material like glass or china that is imperishable and readily cleansed.

"The schoolroom ventilators, as commonly installed, are hidden behind heavy gratings. The dust that is drawn into them accumulates at the floor level because the grilles are not easy to remove. The same ventilators in a modern hospital are left uncovered, with the bottom of the pipe sloping toward the outlet, so that as the dust falls it slides to the floor and may here be cared for. Why not apply the same principle to the schoolhouse? Instead of the usual dado of sheathing with its joints and cracks opened by shrinking, why not use a facing of Portland cement finished with enamel? Thus all the dirty features are eliminated while the structural features are preserved. In the equipment, the same principles should be applied. The desks and chairs should have the casings without ornamentation. The laboratory desks and cases should be constructed, too, on hygienic principles, and kept free of walls and floor, so that there shall be plenty of room for reaching and removing the dirt. With such construction and proper toilets, and the banishment of the drinking cup, the question of schoolhouse hygiene is pretty well provided for."

Mr. Winship, in the Journal of Education, says that there was a "scare" among the superintendents at Indianapolis lest Mrs. Young of Chicago be elected president of the National Education Association during the Boston meeting next summer. And why should not Mrs. Young be elected?

We agree with Mr. Winship that she, personally, is the equal of any man in the association in scholarly ability and administration. And is not the alarm, which certain men felt, a sign of weakness, a fear that they will be unable to retain their prestige in the association and in the eyes of the school people of the nation at large? Mrs. Young's election might give some of the association Betties and schemers a much needed rest.

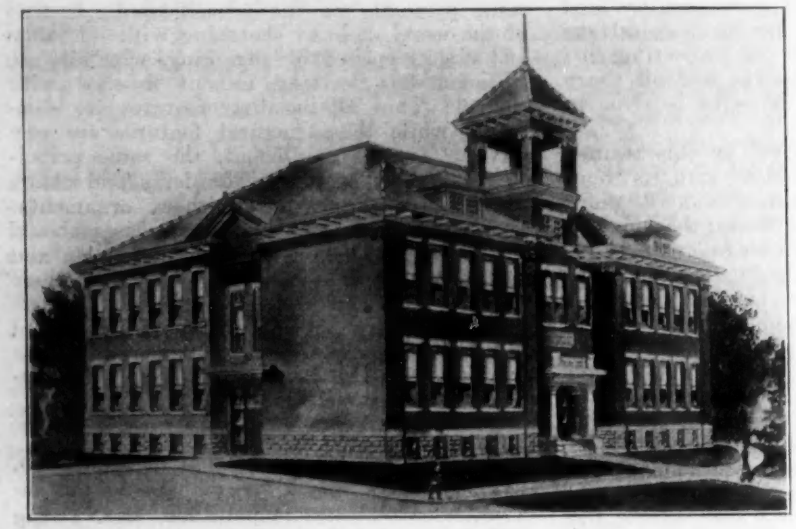
"Juvenile crime is on the increase. We are now expending more money for public prisons, prosecutions, and police than we are for public education. Widespread youthful criminalism is in and of itself a confession of educational failure. A personal study of some three thousand criminals has convinced me that the radical defect in the vast majority of the criminal population is their utter lack of industrial education. Most criminals are thieves—men for the most part who try to get a living dishonestly because they have not learned to get it honestly. They steal who have not learned to work. We are able to estimate the direct cost of crime; but who can estimate the terrible cost of that widespread industrial inefficiency which could be so easily remedied by youthful training in manual, agricultural, and trade processes?" —Thos. S. Mosky, Pardon Attorney, Missouri.

"The man whose life is intelligently ordered is always preparing himself for the highest demands of his work; he is not only doing that work with adequate skill from day to day, but he is always fitting himself in advance for more exacting and difficult tasks."—Hamilton Wright Mabie.

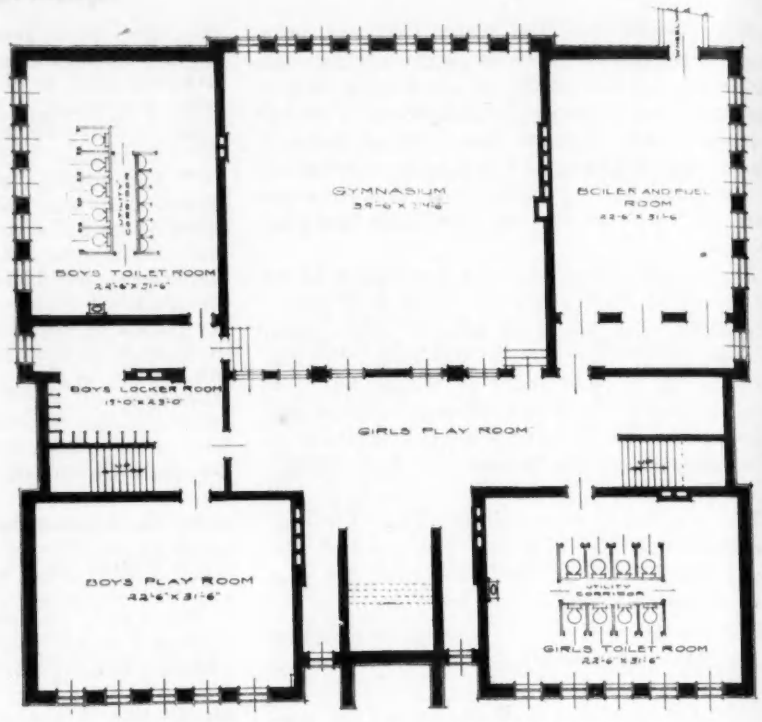
The proposed Independence of Wisconsin High Schools.

The Rockefeller Foundation and the Colleges.

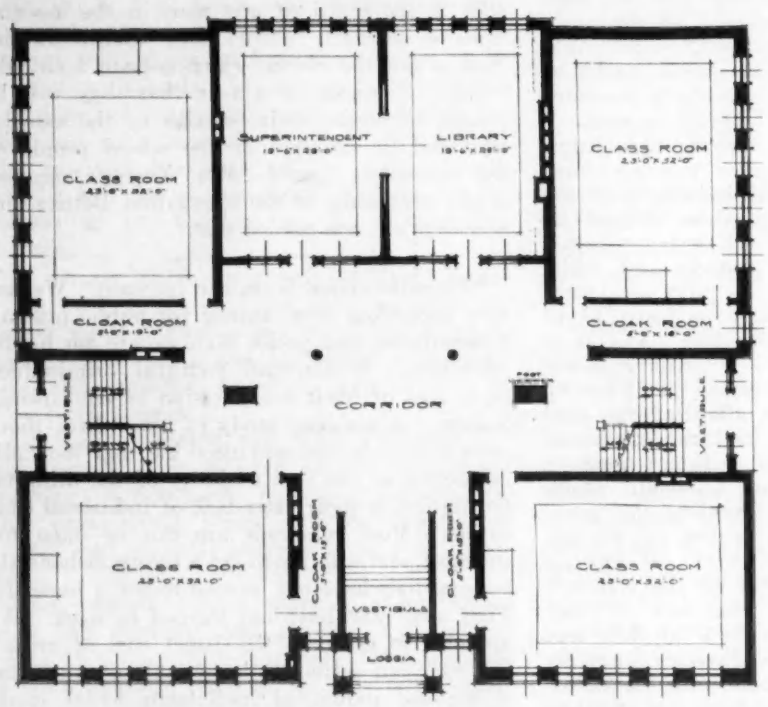
The Nebraska State Board of Education dismisses President Crabtree of Peru.



NEW HIGH SCHOOL, EDWARDSPORT, IND.
J. W. Gaddis, Architect, Vincennes, Ind.
(Description, page 27)

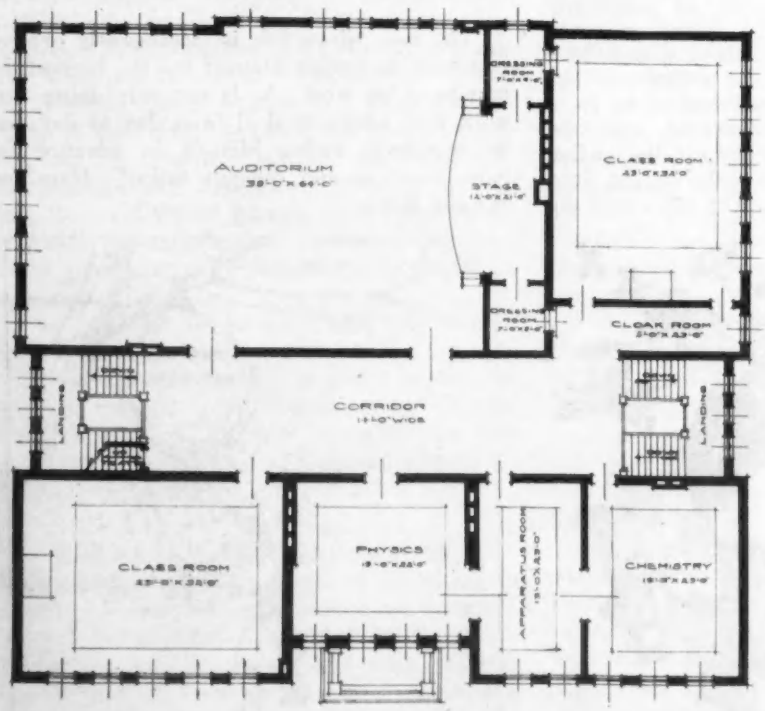


BASEMENT PLAN, EDWARDSPORT HIGH SCHOOL.

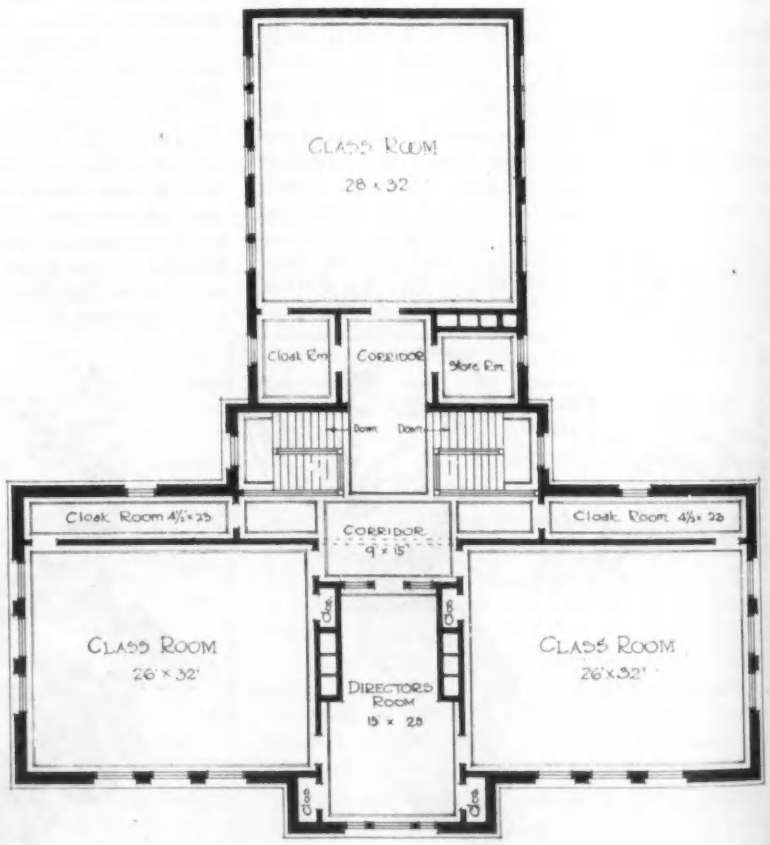


FIRST FLOOR PLAN, EDWARDSPORT HIGH SCHOOL.

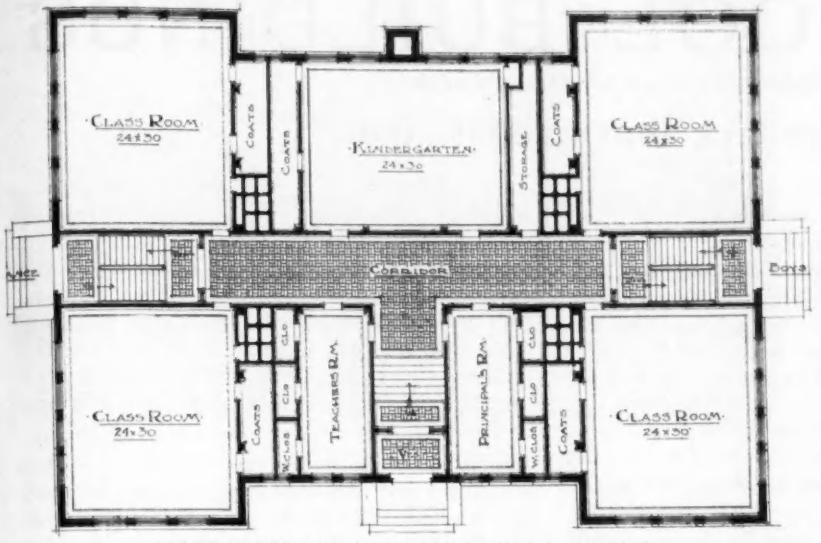
NEW PUBLIC SCHOOL, CHRISTIANA, PA.
Clyde S. Adams, Architect, Philadelphia, Pa.



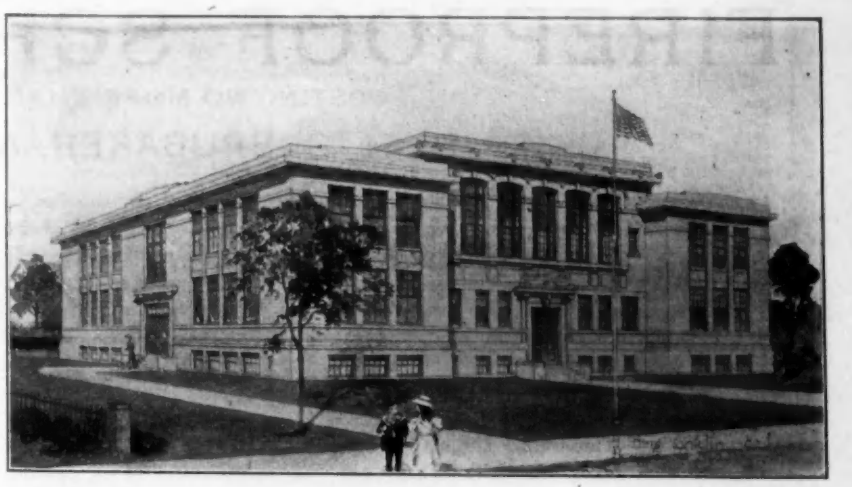
SECOND FLOOR PLAN, EDWARDSPORT HIGH SCHOOL.
J. W. Gaddis, Architect, Vincennes, Ind.



SECOND FLOOR PLAN, CHRISTIANA SCHOOL.
Clyde S. Adams, Architect, Philadelphia, Pa.

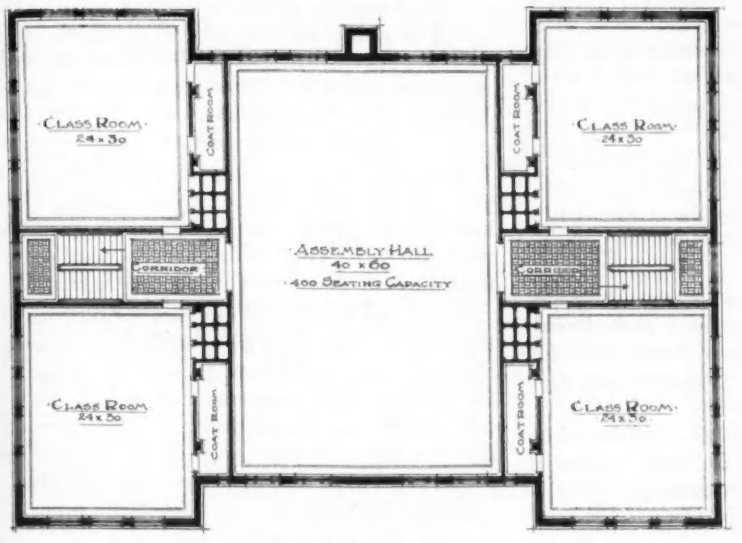


FIRST FLOOR PLAN. MADISON PUBLIC SCHOOL.



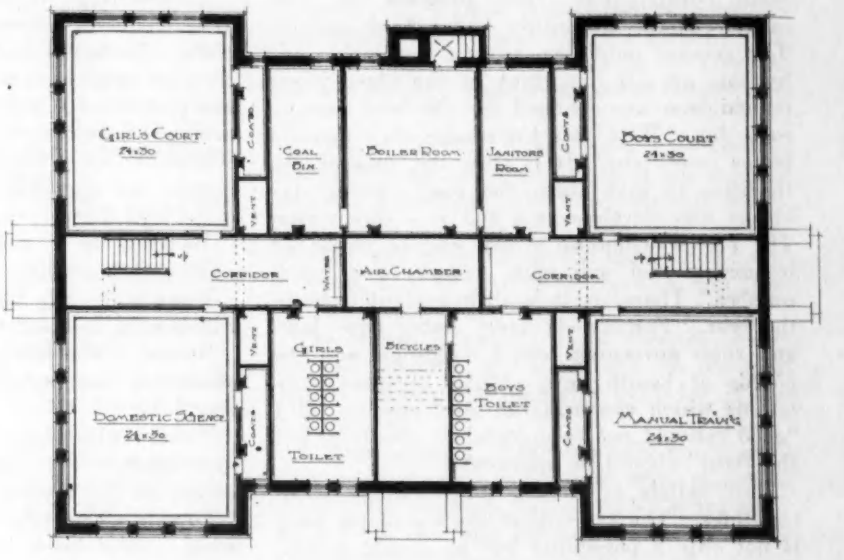
NEW PUBLIC SCHOOL, MADISON, N. J.
Mr. H. King Conklin, Architect.

(Description, page 27)



SECOND FLOOR

NEW PUBLIC SCHOOL, MADISON, N. J.



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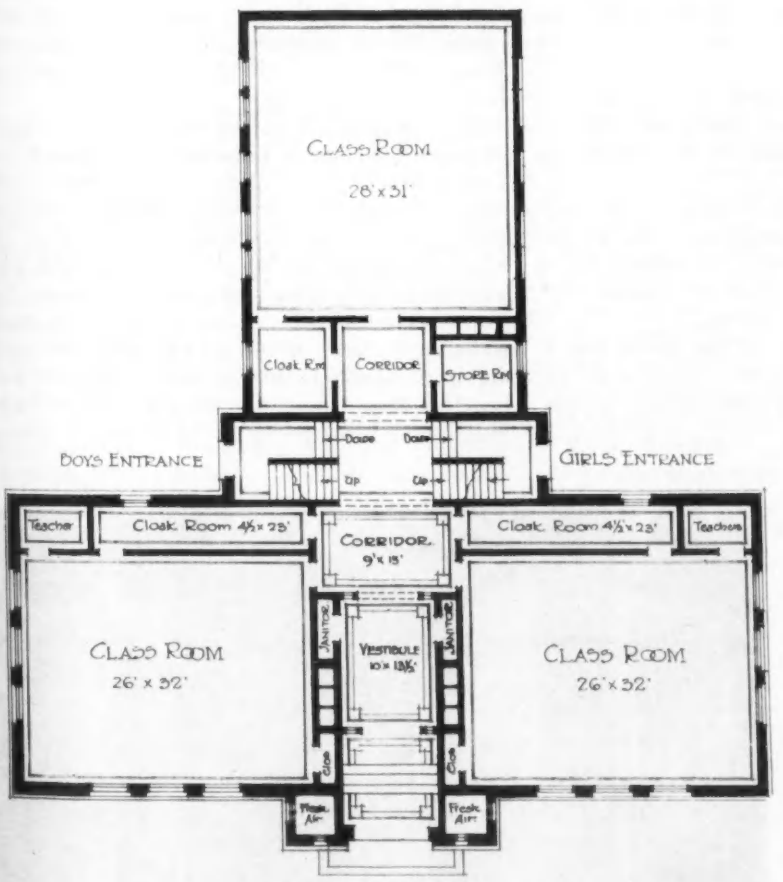

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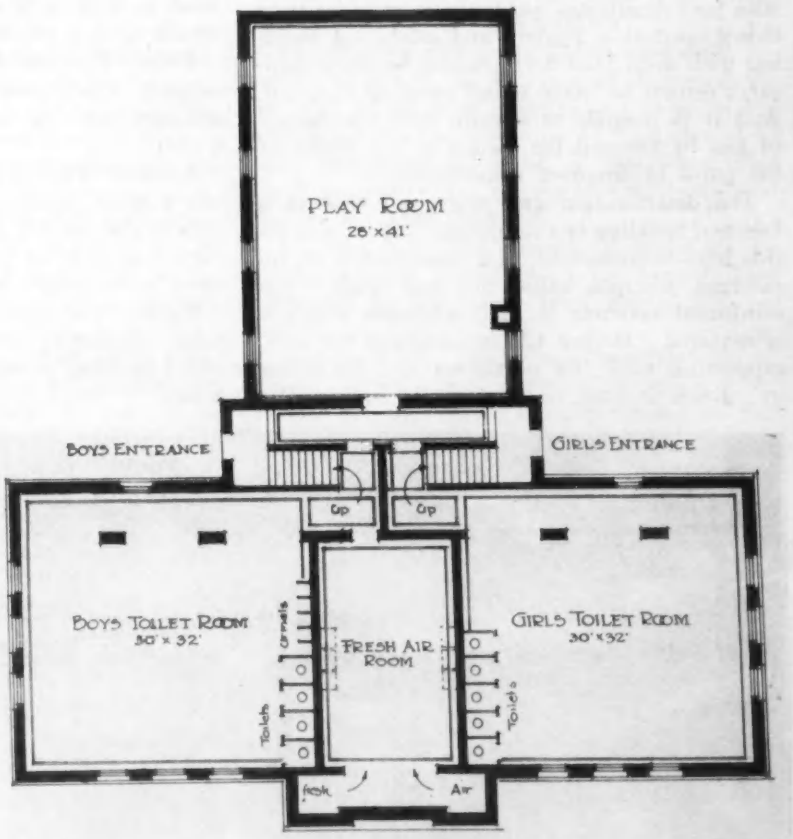


BASE MENT PLAN.

(Description, page 33)

FLOOR PLANS, NEW SCHOOL, CHRISTIANA, PA.

(See Second Floor and Perspective on Opposite Page.)

FIREPROOF SCHOOL BUILDINGS

COSTING NO MORE THAN NON-FIREPROOF BUILDINGS

By H. C. BRUBAKER, Architect, Indianapolis, Ind.

The design of a building for school purposes is a simple, and at the same time, a most complex problem. It was not many years ago that it was only considered necessary to have four walls and a roof, with holes punched in the walls at random, for windows. When it was decided to do something above the ordinary, the money was spent in embellishments. Monstrosites can be found, almost anywhere, which show good intentions and honest efforts, but which, in this enlightened day and age, are found to be absolutely unfit for school purposes.

The knowledge that has been gained through the discovery and study of bacteria, has been the means of starting a revolution in schoolhouse construction. Good progress has been made, but the revolution is far from an end. The general public knows that sanitation and hygiene are all important in the place where its children are confined for the best part of each day. With this knowledge they demand better conditions. It is then the duty of authorities to give them the best. Every day brings new developments and new discoveries. The best schoolhouse to-day will be surpassed to-morrow and will soon enough be a "back number." Therefore it is all important to build the best. Fortunately most states have laws and rules governing school buildings, and the boards of health have adopted certain stipulations which are bringing good results. But "good" should not be acceptable. Nothing but the "best" should be approved.

This article is a plea for *fireproof* school buildings. The sub-title at the top of the page is not only a possibility but an actual accomplishment. The argument is: if you can get the best for the same money there is no excuse for accepting anything inferior.

All laws and rules of state and local authorities for schoolhouse construction have for their object sanitation, hygiene and safety. A building with wood joist floors cannot be made sanitary; cannot be made sound proof or fireproof. And it is possible to obviate both the danger of loss by fire and the danger to the health of the pupil by fireproof construction.

The deterioration and wear and tear in a fireproof building is a minimum. The construction here recommended is a combination of reinforced concrete, hollow tile and brick. The reinforced concrete is used wherever strength is required. Hollow tile is employed for non-supporting walls, for partitions and for filling in. Brick is used in the outside walls. The accompanying photographs illustrate two buildings erected with these materials at the same expense which buildings of the same size cost in the city of Indianapolis before and since their construction. School building No. 44 was built in the summer of 1908. School building No 54 was started in the summer of 1909, and is just being completed. Both are similar in construction.

All structural parts of the buildings, that is. columns, beams, girders, lintels, floor system and stairways are of reinforced concrete. There are no bearing walls whatever; even the outside walls are carried at each story by the reinforced concrete lintels.

In building No. 44, the exterior walls are veneered with common face brick and terra cotta. In building No. 54, pressed brick and Bedford stone have been employed. The veneers are backed with hollow tile blocks and bricks, making a thickness including the veneer of twelve inches. The design of the exterior is simple and dignified. Any design can be executed and there is no limit to the variations.

Backing the veneer with hollow tile accomplishes four results.

First. The tile has two enclosed air spaces which serve as insulation against heat and cold.

Second. The tile is the best foundation for plastering and obviates the necessity for furring.

Third. Tile weighs seventy-five per cent less than brick. The lighter load thus makes a saving in the supports and foundation.

Fourth. The tile backing costs less than brick. Solid brick is used where required by conditions.

The floors are designed after the joist system; that is, there is a succession of concrete joists, about twelve inches apart, with spaces between filled in with hollow tile. Here again the tile effects several results:

First. The tile floor saves a great deal of weight. The concrete joists being on edge are stronger than the same amount of concrete in a slab.

Second. The construction leaves a flat ceiling without projecting beams and make an excellent ground for plastering. Furthermore, a very thin coat of plaster can be applied and there is no danger of its falling.

Third. The hollow tile in the floors makes them absolutely sound-proof. The cost of sound-proofing in ordinary construction is thus saved.

The floors in building No. 44 are finished in maple with corridors in tile. In building No. 54 oak has been used throughout. The stairways are of reinforced concrete and are cast in one solid mass. With the floor construction it is absolutely impossible that they fall. They are far less noisy than wooden or iron stairways. The treads in the present buildings are all wood, although any material can be used.

Any standard system of reinforcing concrete can be adapted to the construction of these buildings, and plenty of competition may therefore he had. The Kahn bar was used in building No. 44; and the corrugated bar in building No. 54.

Figure No. 3 shows a test made on a floor panel in building No. 44 with a load of 180 pounds per square foot. The test showed a deflection of only 1-48 of an inch in a span of 24 feet. The floor was designed to carry a normal live load of 60 pounds.

The interior partitions of both buildings are all of hollow tile and are non-supporting. They are absolutely sound-proof. Between each classroom there is either a double partition or when a cloakroom intervenes two single partitions.

Since the partitions are non-supporting they may be located anywhere without reference to the floors above or below. Furthermore, they can be torn out and rearranged at any time without injury to the building. This permits a flexible arrangement, and rooms on different floors can be of different sizes and location.

When the buildings are completed there is no sign of the construction employed; everything is covered over.

The method of construction has another advantage in that there will be no cracks from shrinkage or settlement, except such as are caused by an improper, defective foundation. Small settlements will be equalized without harm to the building.

By a simple comparison of ordinary methods of construction with those just described I can best illustrate how a saving is made which offsets the cost of fireproofing. In the non-fireproof construction generally used—that is, where the floors are wood joist—all walls and partitions are bearing walls, and must carry the floors, stairways, etc., as well as the load of all walls, roofs, etc., above. Therefore, the walls and partitions in each story must be thicker and heavier than those immediately above and foundations must relatively be increased in size.

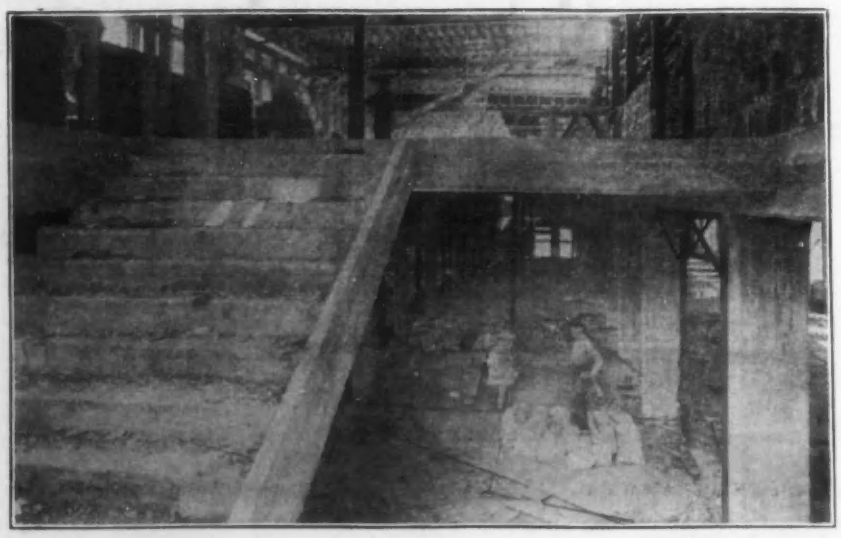


Fig. 1. Re-inforced cement stairways in school No. 44, Indianapolis.

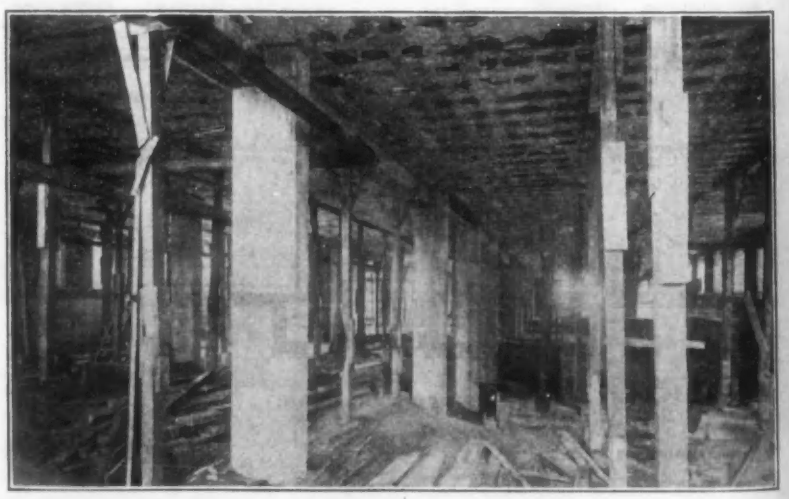
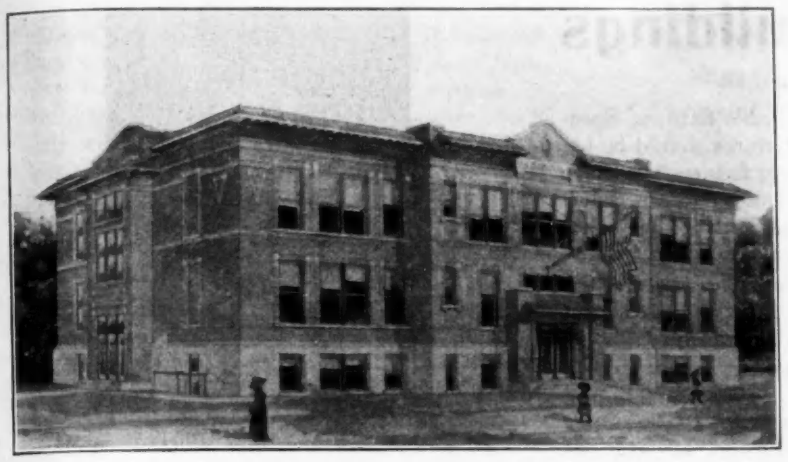
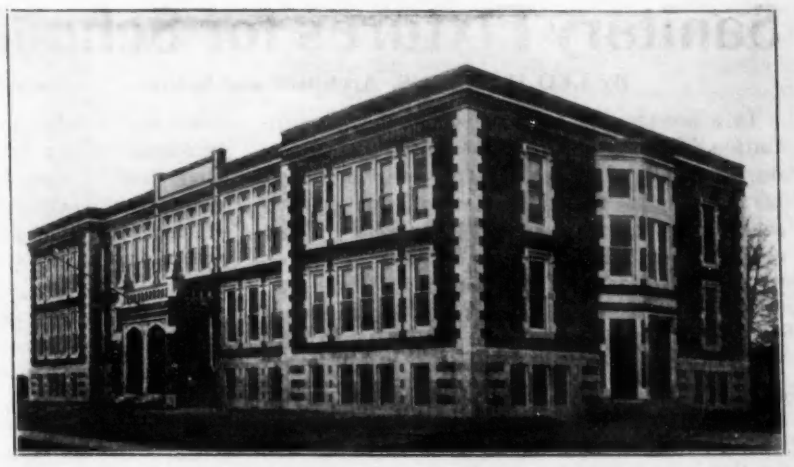


Fig. 2. Basement view, showing concrete columns, girders and floor system.



PUBLIC SCHOOL No. 54, INDIANAPOLIS.



PUBLIC SCHOOL No. 44, INDIANAPOLIS.

Brubaker & Stern, Architects, Indianapolis, Ind.

In the buildings described, the exterior walls are of the same thickness from foundation to roof. The inner partitions instead of being heavy bricks walls are hollow tile from four to six inches thick.

Wooden floors in schools must be deadened. To do this with any degree of satisfaction requires a considerable expenditure. As stated, no money was spent in the present buildings for deadening floors or walls.

In ordinary construction, wood or metal lath, or possibly plaster board, are used for plastering. Sooner or later plaster will crack and threaten to fall. Hence, many school authorities will not permit plastered walls in classrooms, and resort to stamped metal ceilings, which are comparatively expensive. In fireproof construction the plaster cannot crack, as it unites with the tile and concrete and forms a solid mass thereon.

The saving made in the elimination of heavy bearing walls, floor deadening, lathing and other accessories to wood construction is ample to cover the cost of fireproof construction. It is necessary, however, that the design be very carefully worked out with regard to economy in space. The result is a building with all the advantages and merits of a non-inflammable structure that is permanent and durable, absolutely safe and sanitary.

BUSY SUPERINTENDENTS.

The women teachers of New York City have met another rebuff in their fight for equal pay. At its March meeting the board of education again defeated a resolution, seeking to grant their petition, by a vote of 23 to 16. Three of the four women members of the board voted against equal pay. The efforts of the allied teachers' organization will be directed toward the commission which was recently appointed by Mayor Gaynor to investigate the school laws affecting the city.

Supt. H. C. Johnson has been re-elected for a three years' term by the board of education for Aberdeen, S. D. In recognition of his splendid services, Mr. Johnson was given an increase of $500 per year in salary.

Supt. John Dietrich of Colorado Springs has recently resigned and will leave Colorado Springs with the opening of the coming school year. Mr. Dietrich has held his present position during a period of fourteen years.

Columbus, O. A bill providing for uniform text books in the rural and village schools of the state has been passed by the Ohio state senate and is pending in the house.

The bill provides for the creation of a state school book commission, with the school commissioner at its head.

The commission is empowered to decide upon a list of books for use in the primary and grammar grades, and to receive bids and award contracts to supply the books decided upon.

A retirement fund for teachers in Pittsburg will shortly be established by the central board of education. Two funds started by organizations of teachers have existed for a number of years, but it is understood that they will place their resources at the command of the board of education.

New York City. The committee on elementary schools of the board of education has recently resolved to protest against licensing moving picture shows in the vicinity of public school buildings. This was brought to a head by proposed establishment of one of these shows near one of the largest schools in Manhattan. It has been found by teachers and principals that these amusements near schools excite the children unduly and are sometimes to be blamed for tardiness or absence on the part of the pupil.

Waterloo, Ia. The school savings system has been introduced in the public schools at the direction of the board of education. The stamp method, by which the children fill cards with stickers, has been selected.

The Cleveland Avenue public school at Camden, Ark., is rapidly nearing completion and will be furnished and ready to receive its classes in September. Mr. Lewis Bauerlein, secretary of the board of trustees, states that several new teachers will be required.

Philadelphia, Pa. William Dodge Lewis of Rochester, N. Y., has been elected principal of the William Penn high school for girls in Philadelphia. He succeeds Cheesman A. Herrick, who was recently made president of Girard College.

Brooklyn, N. Y. A new system of keeping track of the books issued to pupils has recently been put into effect in the Newtown high school. Every pupil makes out a card for each book he received, and when he returns the book the card is turned over to him, thus releasing him from further responsibility.

The system is simple, and it depends largely upon the parents of the children to see to it that the books are promptly paid for if lost or destroyed.

A large amount of the city's money is spent each year in replacing books that might be saved if the students had a greater sense of responsibility for the care of public property. Not only is this money wasted if the students are careless, but what is of very much more importance, the children are allowed to form habits of extravagance and disregard for property which does not belong to them and which amounts to actual appropriation.

The Massachusetts association of school superintendents at its last meeing discussed the question of teachers' salaries and came to the conclusion that a minimum of $450 should be paid throughout the state. It was shown that seventeen per cent of the teachers now employed receive less than that sum.

Chicago, Ill. The salaries of bathroom attendants in the public schools has recently been advanced by the board from $50 to $55 per month.

Boston, Mass. The school committee has recently agreed upon measures which will increase the income of the department so that the elementary may receive a raise of $48.

Fig. 3. Test made on 24-foot floor space.

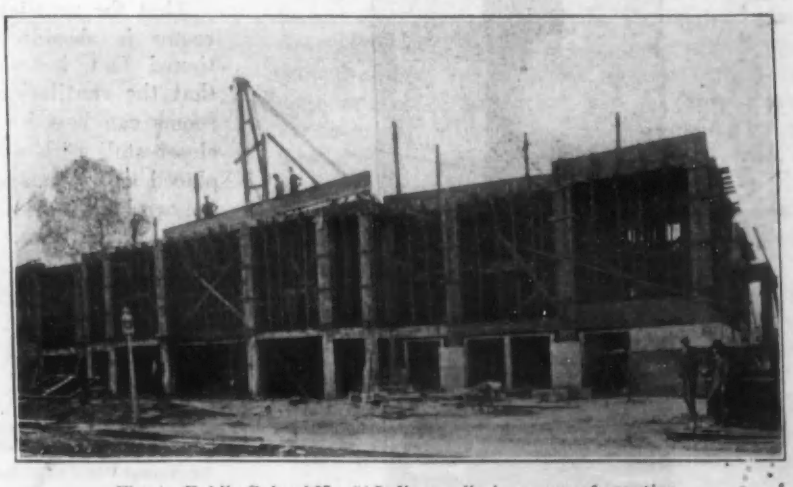


Fig. 4. Public School No. 54 Indianapolis, in course of erection.

Sanitary Fixtures for School Buildings

By LEO H. PLEINS, Architect and Sanitary Engineer, Chicago, Ill.

In a recent article by the writer on the sanitation of the modern school building,* we endeavored to point out the progress that had been made in the sanitation of the modern school building, since the abolition of the closet range system of either the dry heated air or water flushed type, which had been the cause of so many and serious epidemics in years past.

At the present time, two types of individual closet fixtures are to be considered for school work. These are known as the "washdown with jet action" and "siphon jet." The siphon jet is to be preferred, but where cost is a vital consideration, the washdown bowl with jet may be used with the assurance of satisfactory results. The reason for the superiority of the siphon jet is that on account of the greater water surface in this bowl, there is less fouling surface, which is an obviously desirable feature.

Either type of fixture should be what is known as "seat operating," therefore automatic in its action, flushing the bowl when the seat is released from the pressure of the body. The operating valve should be as simple in construction as possible, with a minimum number of parts—all of these easily accessible—and the valve should be so constructed that the friction on the parts is reduced to a minimum. The valve must be so designed that, when the seat is depressed, the water supply port in the valve is opened, permitting the water to pass up through the flush pipe into the tank and the valve into this must positively close the flush communication to the bowl. When the seat is released, the water supply inlet to valve must be shut off, the flushing connection to bowl open, permitting the contents of the tank to flush the bowl.

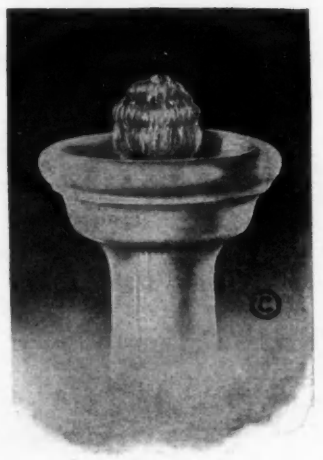
In addition to the great advantage of a seat operating device of this kind from a sanitary standpoint is its great economy in the consumption of water. It is certain that if three gallons of water will effectively flush a closet bowl, there is no need for using more, as every effort should be made to economize in the consumption of water.

It is noticeable that school boards generally are displaying much more interest at the present day in the selection of fixtures for school work than in the past. This is as it should be, and due to this, better results will certainly be obtained. Too great care cannot be exercised in the selection of suitable fixtures. Specifications calling for such fixtures should be explicit, and in order to exclude fixtures that have not proven satisfactory, should go into detail of description covering standard fixtures that are known to be satisfactory in every respect.

The main points to be considered in the selection of closets are that they be constructed of absolutely vitreous earthenware; walls as heavy as possible; waterway not less than two and one-half (2½) inches full diameter, and not reduced in area at any point. The water surface in the bowls should be as large as possible in order to reduce the fouling surface in the bowl to a minimum, and it is for this reason that the siphon jet bowl is so greatly superior to the washdown type. The depth of seal should not be less than two and three-quarters (2¾) inches. The flushing rim should be oval and heavily rolled and the perforations so graduated in size that the flushing of the bowl is as uniform as possible at the moment the flush takes place. All attachments to bowl, such as seat, hinges, valves, etc., should be made as strong as possible and not complicated, and the bowls must not exceed 14 inches in height. An excellent method to follow in specifications is to give the weight of bowls, size of waterway, area of water surface, depth of seal, weight of trimmings, etc., and provide a clause requiring that all vitreous earthenware be of best hard fired sanitary vitreous china, stamped with the trade name of the manufacturer under the glaze, and the ware guaranteed against crazing or discoloration.

An important point to be considered in connection with the installation of water closets is the provision for ventilation of either the water closet bowl above the water line or the ventilation in the rear of closets; the latter serving the purpose of ventilating both the room and the bowl itself. When closet bowls were first provided with local vents, they were made two inches in diameter, which size was found entirely too small and the openings were increased in size to three inches and larger in diameter. Such fixtures are in use today. While the objections to the clogging up of the two-inch vents were somewhat reduced by increasing the size to three inches and larger, experience has proven that unless such vents are connected to an extraordinarily efficient vent system, the method is not satisfactory, the danger being that if the exhaust be too strong, it will cause drafts; or if not strong enough, will fail to ventilate. In either case there is a possibility that openings of vents will become fouled unless frequently cleaned, which is not always possible on account of insufficient number of attendants or carelessness on their part.

That the ventilation of closet bowls or toilet rooms is absolutely necessary is an unquestioned fact, but experience has demonstrated that the ventilation of closet bowls and toilet rooms can best be obtained by providing each closet stall with a ventilator of sufficient area placed a few inches above the bowl. This will remove both local odors and ventilate the rooms well, instead of confining all ventilation to the closet bowls only.



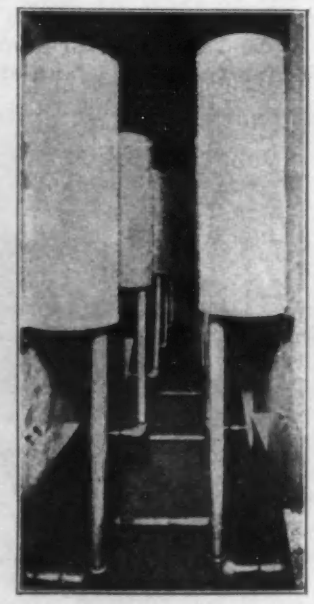
Drinking Fountain with China Bubbling Cup.

The next and very important feature to be considered in the designing of school toilet rooms is the grouping of water closet fixtures. The closet stalls may be of wood, slate or marble, to suit particular conditions. Slate makes an excellent and inexpensive sanitary material. In any event, whatever material is used the arrangement may be the same. Preferably, the closet stalls should be arranged in double battery. If conditions prevent, they may be arranged in a single row or battery, but in either case, the stalls should be provided with twenty-four inches of working space behind the backs, which serves the purpose of concealing tanks, flush pipes, water supply pipes, soil and vent pipes. At one end of this working space, a door should be provided to permit admittance for inspection or repairing. If water closets with local vented bowls or closet stall ventilators are used, the working space may be capped and will also serve the purpose of vent chamber. The vent connection to the main vent duct may be taken from the top, bottom or rear of vent chamber, as is found most convenient. The closet stall partitions should be twelve inches above the floor at the bottom and from five feet six inches to six feet above the floor at top. The backs of stalls should extend down to the floor, especially if the working space is used as vent chamber.

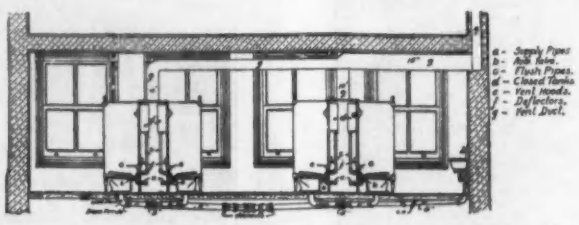
In a great many cases, water closet stalls are not provided with doors. Where doors are omitted, the depth of stalls need not exceed three feet and six inches, otherwise four feet and six inches is the minimum. If doors are used, they should swing in and should be so adjusted as to remain open when stall is unoccupied. No water closet stalls should be less than twenty-eight inches in width and thirty inches is the most desirable.

A fixture that cannot be given too careful consideration from a sanitary standpoint is the urinal. It is to be regretted that while there has been a marked improvement in schools

*American Architect for November 17, 1909.



Utility Corridor between two rows of Closets.



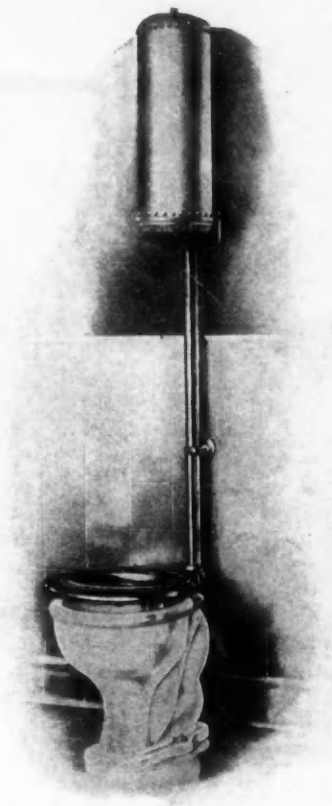
Sectional View of Toilet Room, showing space between Closets used for hiding pipes and and tanks. and serving as a vent duct.

Closet Stalls fitted with Vent Hoods.

throughout the country, so far as the water closets are concerned, there are still many very insanitary types of urinals to be found. The most common type of these consists in nothing more than a slate or marble back slab with galvanized iron gutter, the flushing being accomplished by means of perforated brass washdown pipe. Such a device is only moderately effective, consumes too much water. If ventilation of closet bowls is necessary, it is certainly far more necessary to provide for the proper ventilation of urinals. The essential features that a sanitary urinal must possess are that the exposed surfaces be thoroughly flushed as frequently as possible and that a body of water maintained in the gutter reduce offensive odors to the lowest degree. Furthermore, the fixtures must not be too wasteful in the consumption of water and above all, it must be ventilated efficiently.

A fixture that will meet these requirements is an urinal constructed of selected black slate, of the ventilated type, having deep solid porcelain gutter, carrying a standing body of water not less than two inches in depth, which is periodically flushed out by means of an automatic siphon trap. The flushing of the surface of backs is accomplished by means of a controllable flushing device not liable to become clogged and which will distribute the water evenly over the surface of the back. The bottom edge of the back is set above the water line in the gutter and can be about one inch from back edge of gutter, forming a continuous vent opening and thus ventilating the fixture as well as the room in which it is placed. The floor slabs should be countersunk and grooved to drain into the gutter. A fixture of this description is not too expensive and will be found entirely satisfactory. In some instances, fixtures of this description have been made up of Carrara glass instead of slate. This, of course, makes it extremely expensive, and it is a question whether there is sufficient superiority in the glass above a select, hard, black slate to warrant the additional cost.

Recently, a new and extremely sanitary type of urinal has been introduced for school work. This urinal is of solid white glazed porcelain, eighteen or twenty-four inches in width, forty-two to fifty inches high, with a projecting lipped bottom; sides, back and top all in one piece, glazed on all exposed surfaces, except the backs, and having integral shields projecting about four inches from the face of the urinal forming partitions. These urinals are set closely together, the sides being ground if required. The bases are let into the floor and provided with slate, marble or porcelain floor slabs. Each urinal has a nickel plated



Syphon-Jet Closet, with Automatic Operating Seat.

brass spray flushing device or integral flushing rim, which distributes the water evenly over the curved surface, and the base of each urinal has a brass strainer and plug and is connected to a two-inch P trap set into or below floor. The flushing is accomplished by means of an automatic tank set to operate as frequently as may be desired. Each urinal has a vent opening covered by a porcelain shield of twelve square inches area near the bottom so that the perfect ventilation of fixture is assured. A fixture of this description seems, without question, nearer the most perfect urinal from a sanitary standpoint that could be used for school work.

Standard earthenware, siphon jet or similar styles of earthenware urinals which are set above the floor, are obviously not adapted for school work.

All toilet rooms should have floor drains and traps with not less than three inches outlet, with both solid and perforated covers of polished brass.

Drinking fountains for schools must receive proper consideration and must be of such type that there will be no possibility of their becoming infected and the means of communicating infection to the user. For this reason, the old style faucet and cup have been abandoned. The drinking fountain ideal for school work is the pedestal fountain with a porcelain bowl and a bubbling cup, having a constant running stream of water, which will permit the user to drink without the lips coming in contact with the cup. Some fixtures of this type were formerly provided with metal bubbling cups. These were not satisfactory on account of corrosion and discoloration where the water contained iron or sulphur. Also, when mischievously inclined children pushed those in the act of drinking injury was caused to the lips and teeth by violent contact with the edges of the metal cup. Recently, these bubbling cups are being made of vitreous china with rolled and rounded edges, which entirely overcomes the objections to the metal cup. Fountains of this type may be placed in corridors or play rooms, and one fountain of this style will serve more than those where cups or glasses are used. The fountains may be provided with self-closing faucets in order to be less wasteful of water, the faucet being provided with a small opening or by-pass in order to allow just enough water to run continuously to properly wash the edges of the bubbling cups.

The remaining fixtures required in the equipment of schools are lavatories and slop sinks. The lavatories should be of vitreous china with slabs, with or without backs, all in one piece. They should be set singly or in battery as conditions may demand and provided with self-closing faucets of durable type. The basin should have some approved type of pop-up waste instead of chain with rubber stopper. The waste and supplies should run from the wall instead of floor, wherever possible. Lavatories should be supported on concealed wall hangers or wall brackets, as such an arrangement prevents the accumulation of dirt underneath the fixtures. Each basin should be provided with a liquid soap dispenser device, which is so much more sanitary than cake soap.

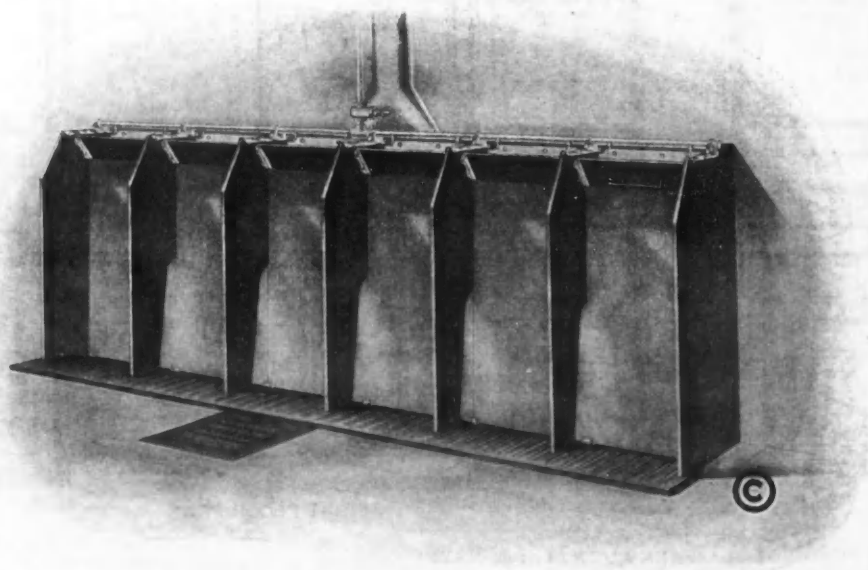
As a rule, cold water only is provided for lavatories. It is needless to say that hot water supply may be included to advantage, especially so if the school has a gymnasium, when showers are necessary.

The janitor's slop sinks may be of solid porcelain or porcelain enameled iron with integral backs, or rolled rim all around, as desired. The sinks should be supplied with both hot and cold water.

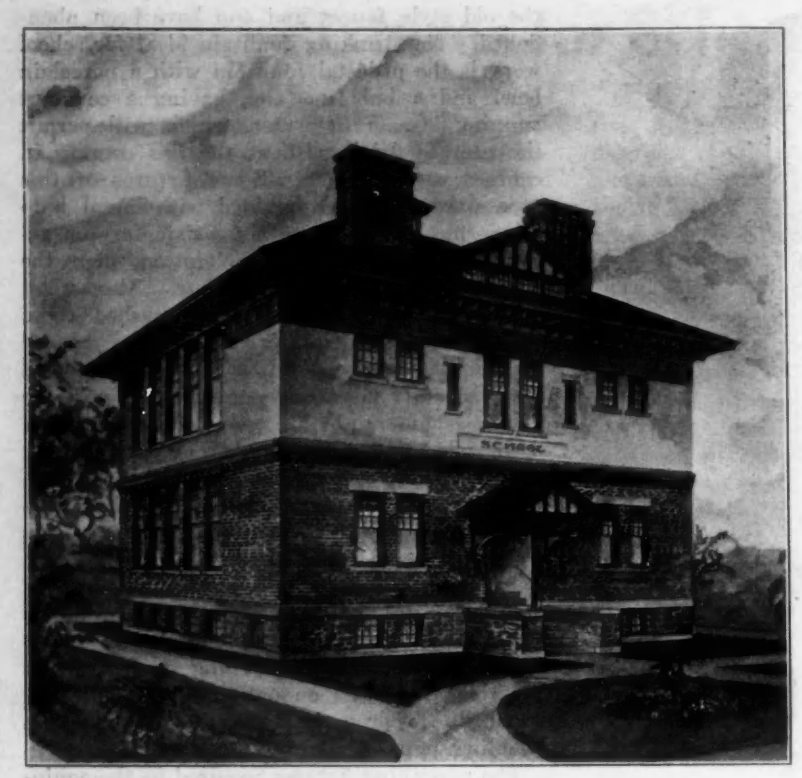
Showers for gymnasium should have stalls and dressing compartments of slate or marble, with doors to the dressing stall, and duck curtains on the opening between shower and dressing stalls. The shower stalls should not be less than three feet square inside, and dressing stalls three feet by three feet six inches. The shower stall should have a porcelain, slate or marble countersunk floor slab, with combined floor drain and trap in center with two-inch waste. The opening between shower and dressing room should have a coping of slate or marble six inches high to prevent water from splashing on to floor of dressing room. The dressing room should be provided with a seat of slate or marble; stalls should be six feet and six inches high above finished floor, and bottom of partition should be let into floor one inch.

The showers should be of a plain type with five inch cast brass shower head with removable face attached to a ball and socket joint so that the angle may be changed to suit the bather. The shower should be controlled by means of an approved type of non-scalding valve with check valves on the supplies, which should preferably come from wall or ceiling instead of rising from the floor.

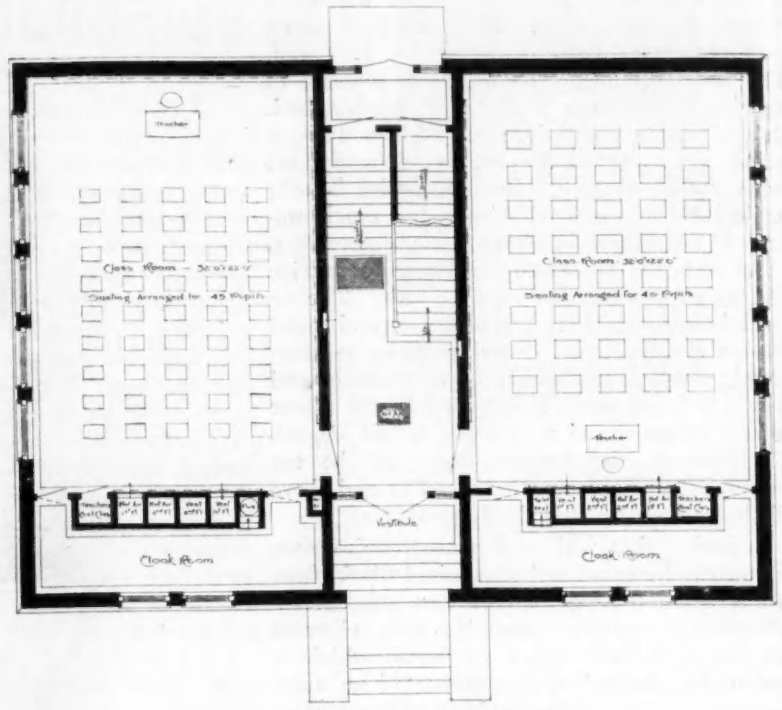
(Concluded on Page 38)



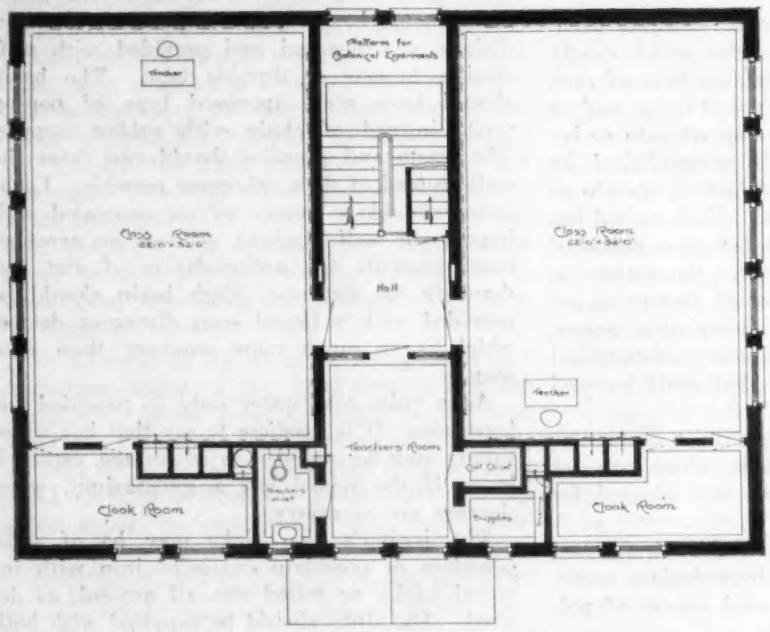
Single Ventilated Urinal.



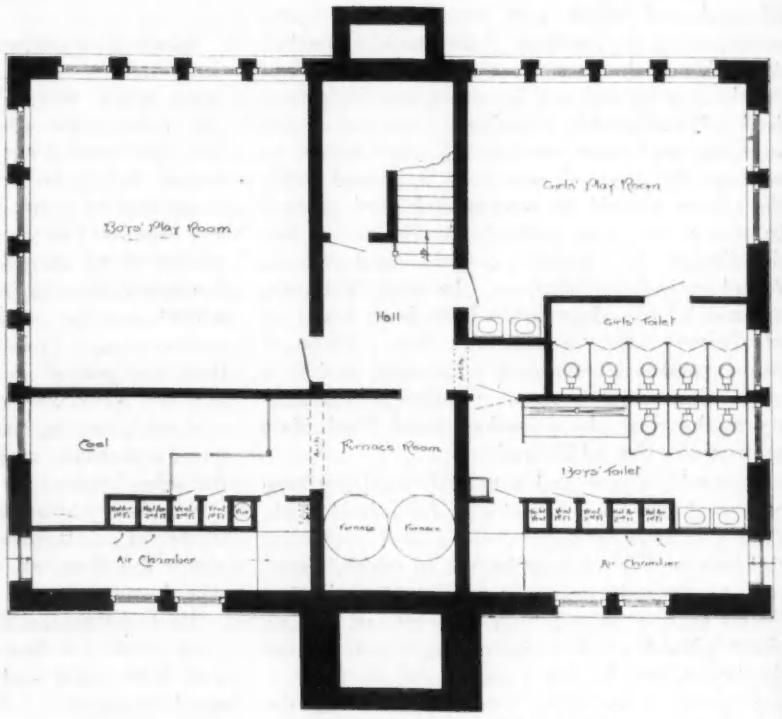
NEW SCHOOL DESIGN FOR DISTRICT 5, NISKAYUNA, N. Y.
L. Rodman Nichols, Architect, Schenectady, N. Y.



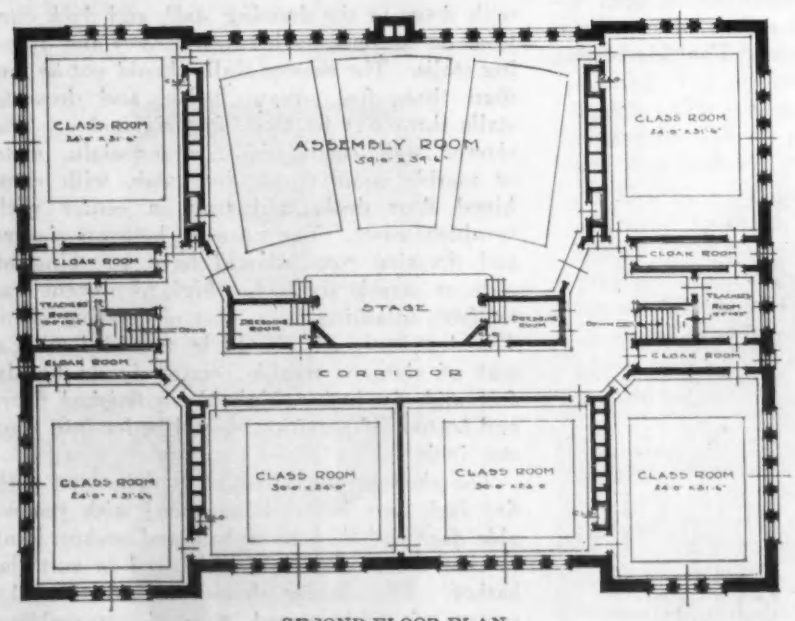
FIRST FLOOR PLAN, NISKAYUNA SCHOOL.



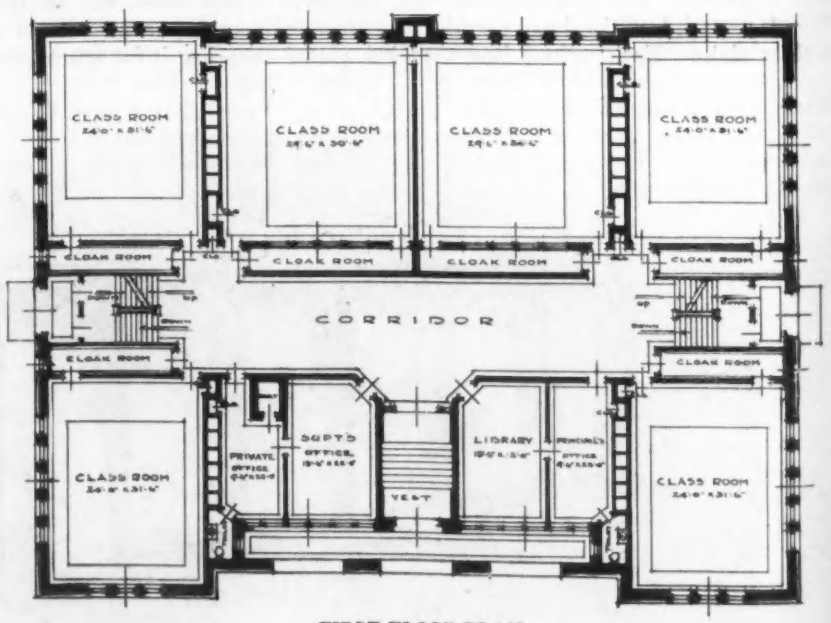
SECOND FLOOR PLAN, NISKAYUNA SCHOOL.



BASEMENT PLAN, NISKAYUNA SCHOOL.



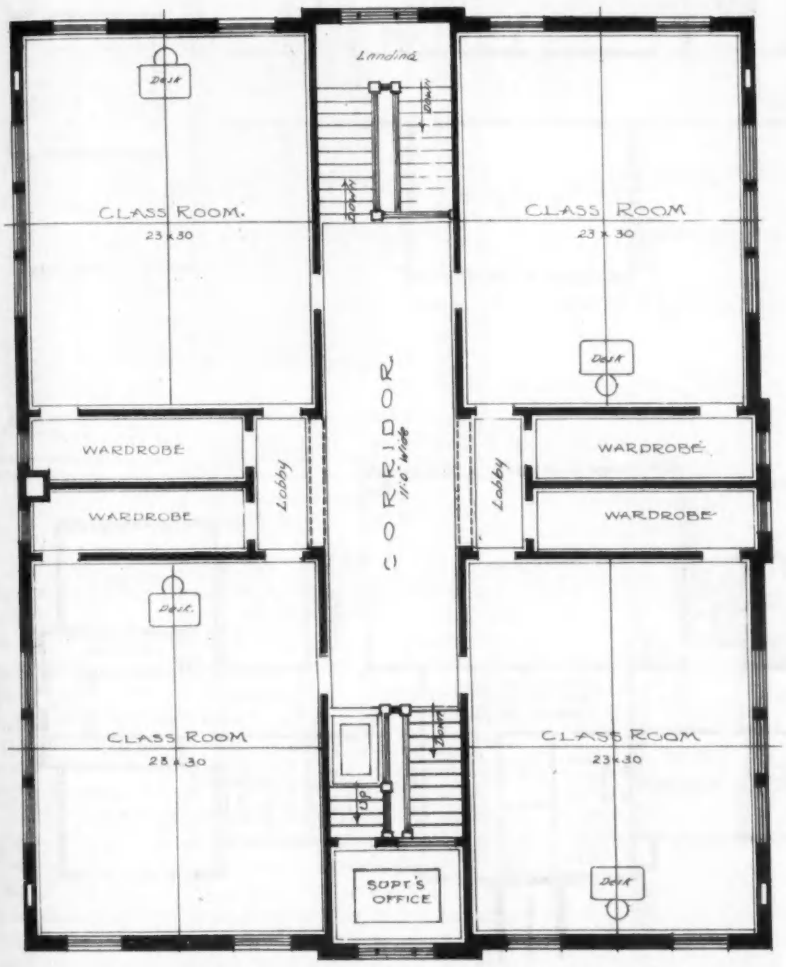
SECOND FLOOR PLAN.



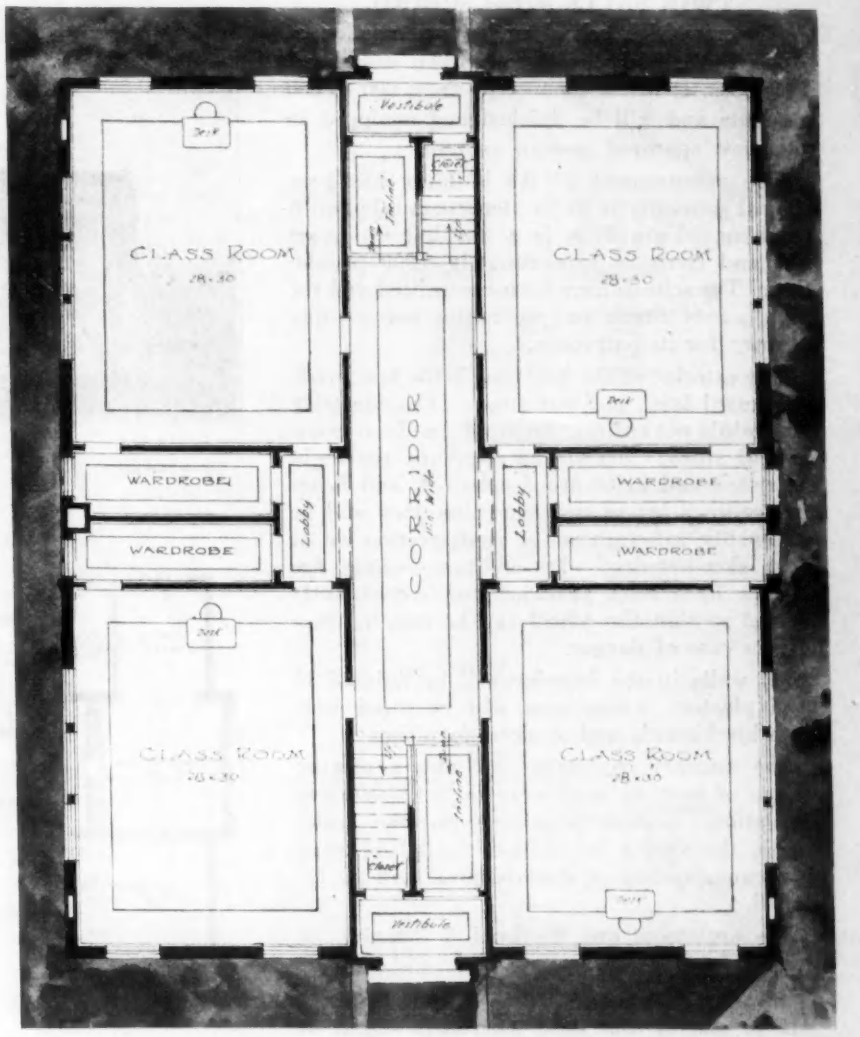
FIRST FLOOR PLAN.

PROPOSED HIGH SCHOOL, DELAWARE COUNTY, PENNSYLVANIA.
Henry L. Reinhold, Jr., Architect, Philadelphia.

NEW ELEMENTARY SCHOOL, HINTON, OKLA.
Bailey & Bailey, Architects, Oklahoma City, Okla.



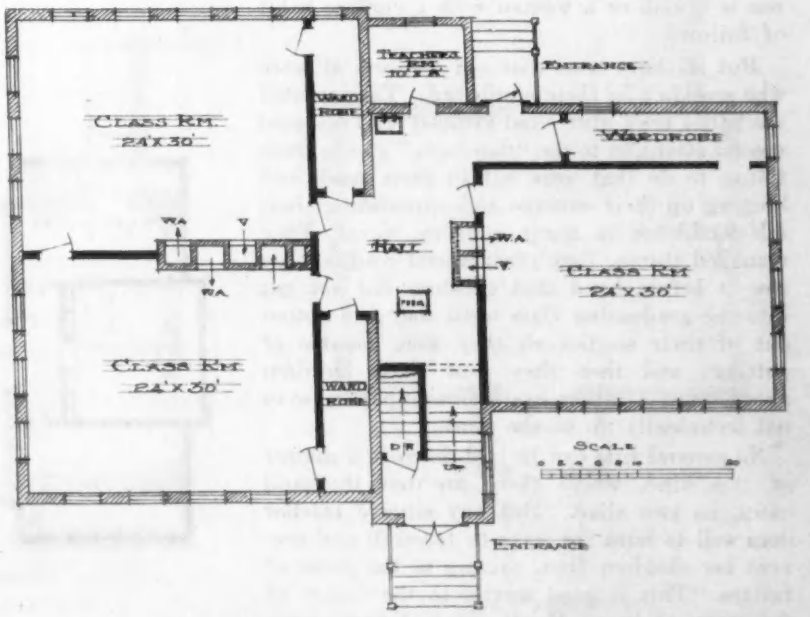
SECOND FLOOR PLAN, HINTON SCHOOL.



FIRST FLOOR PLAN, HINTON SCHOOL. (See page 40).

NEW SCHOOL, DUTCHESS JUNCTION, N. Y.
Charles B. Van Slyck, Architect, Matteawan, N. Y.

FRONT ELEVATION, PROPOSED HIGH SCHOOL, DELAWARE COUNTY, PA.
Mr. Henry L. Reinhold, Jr., Philadelphia, Pa.
(Plans on opposite page).



FLOOR PLANS, DUTCHESS JUNCTION SCHOOL.
Charles B. Van Slyck, Architect, Matteawan, N. Y.

TWIN FALLS HIGH SCHOOL.

The new high school under construction at Twin Falls, Idaho, will cost, when completed, $150,000. It will accommodate from 600 to 800 students and will be finished and equipped in the most approved modern manner.

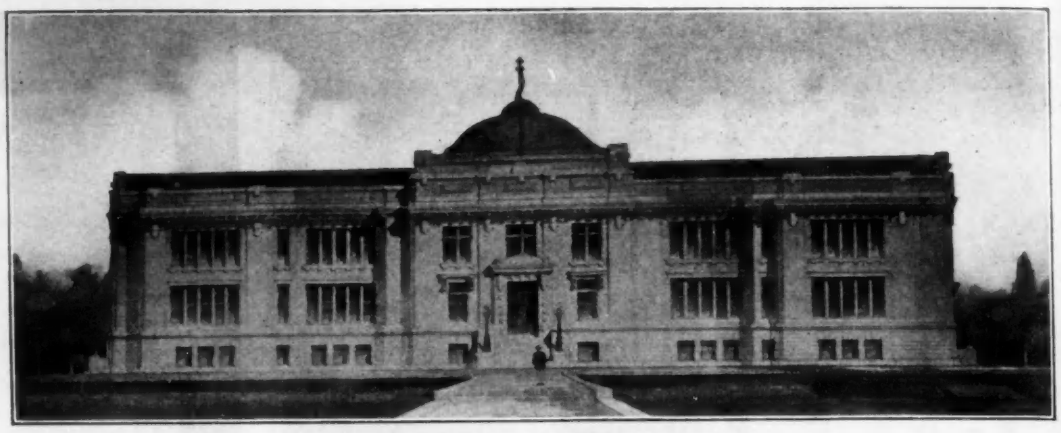
The arrangement of the building has been shaped primarily to fit the departmental plan of teaching. Twin Falls is a city but five years old, and contains approximately 6,000 population. The schools have been centralized and the high school draws on the entire surrounding country for its patronage.

The exterior of the building is the best grade of pressed brick and cut stone. The construction, while not entirely fireproof, has been given careful study. All of the corridors, the main stairways and exits are fireproofed, and floors and ceilings are so protected that they will be reasonably safe against a conflagration or at least slow-burning. In addition, ample fire escapes have been provided and conveniently located so that the school can be emptied rapidly in case of danger.

All walls in the interior will be finished in hard plaster. Classrooms will be fitted with slate blackboards and modern furniture.

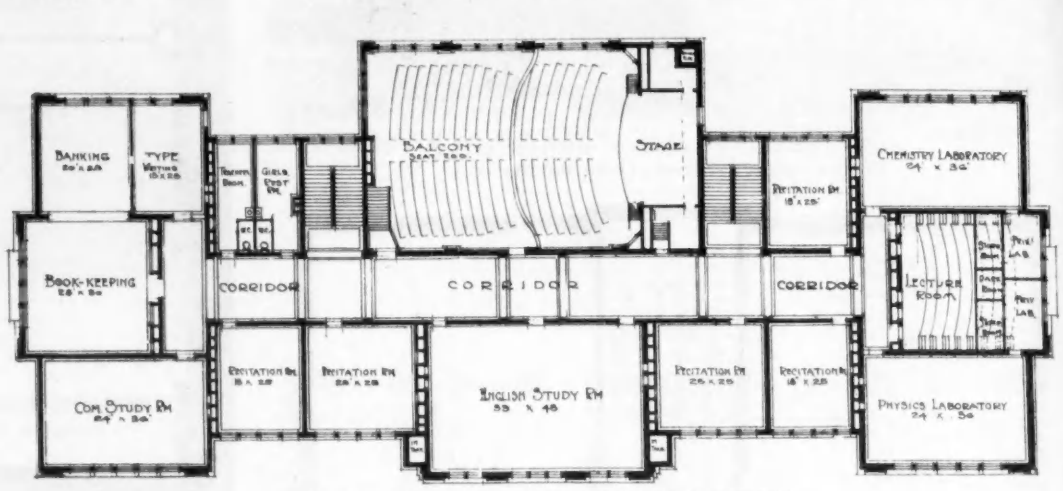
The sanitary equipment includes a plenum system of heating, with automatic temperature regulation, modern plumbing in the toilet rooms, the shower baths, and the laboratories. A vacuum system of dust removal will be installed.

The architects are Wayland & Fennell, of Boise, Idaho.

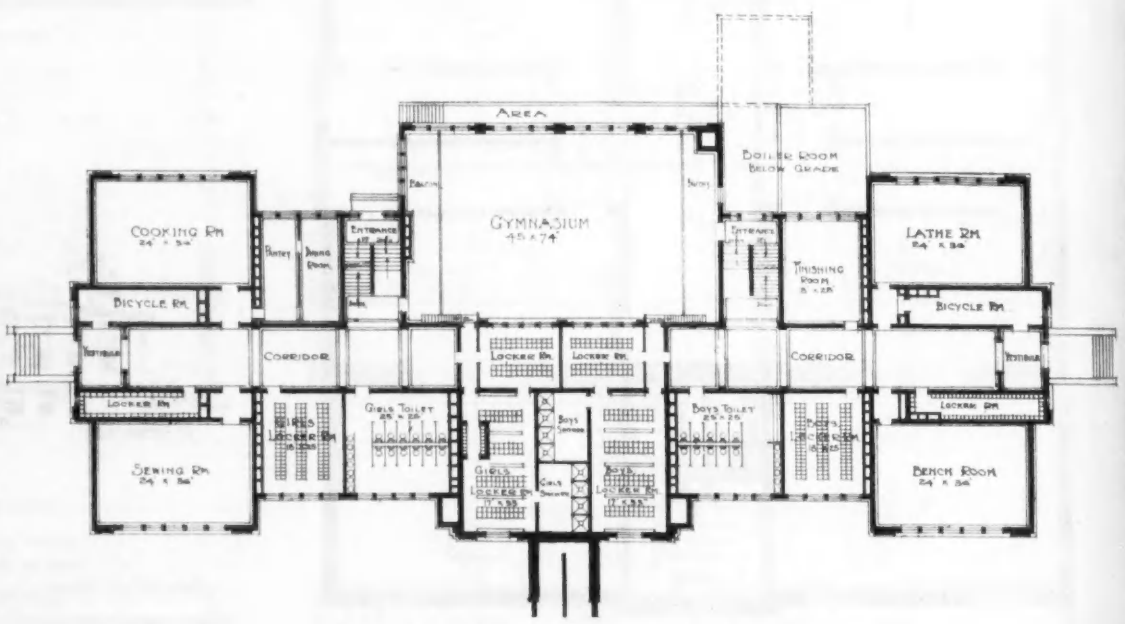


Cost $150.000

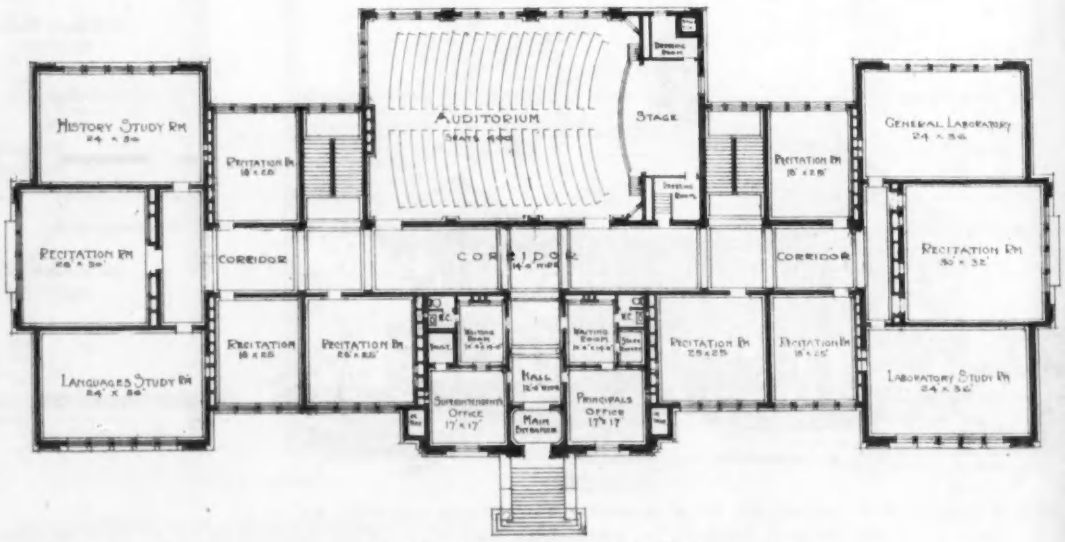
NEW HIGH SCHOOL TWIN FALLS, IDAHO.
Wayland & Fennell, Architects, Boise, Ida.



SECOND FLOOR PLAN, TWIN FALLS HIGH SCHOOL.



BASEMENT PLAN, TWIN FALLS HIGH SCHOOL.



FIRST FLOOR PLAN, TWIN FALLS HIGH SCHOOL.

SAVE CHILDREN FROM FAILURE.

It is one of the most sorrowful sights of civilized life, to see a child fail in school at the end of the year. It is a tragedy for him to fail. It damns his future. He loses his grip. He falls out of the procession. His courage and self-confidence are shaken. He forms a habit of failing and expects to fail and *does* fail through all the years of the future. It is a blighting misfortune, from any viewpoint a cruel and tragic affair.

And what does the child do next year in school, after failing? Improve in his studies and becomes the best one in his class? Not at all. Usually he fails because his mind is not so alert and prompt and quick as the others; and the second year he takes the same rank with the new pupils as with the old. The third year it is the same thing again. He partly knows the subject-matter, but the zest is gone, the spark of interest has departed, his mates have left him behind, he is only a failure. What is life without ambition? What kind of a citizen is a man or a woman with a chronic habit of failure?

But all have seen wise old teachers at work who *wouldn't let their pupils fail.* They scented the battle from afar—and avoided it! They paid special attention to the "slow boys," giving them things to do that were within their reach and keeping up their courage and stimulating their self-confidence in many cunning ways. They managed things, they prearranged results, they saw it before hand that children did not get into the graduating class until they had gotten out of their studies all they were capable of getting; and then they sent those children ahead, even if their examination papers were not technically up to the mark.

No general rule can be laid down in a matter of this kind, where there are ten thousand cases, no two alike. But any sincere teacher does well to hunt for ways to forestall and prevent her children from coming to the point of failure. This is good service to the future of the state.—Edward Hyatt, State Superintendent of Instruction, California.

AN ACTIVE CAMPAIGNER.

Mr. R. W. Paltridge, western manager for the Fred Frick Clock Company, is one of the most active clock advocates in the country. He is a man of tireless energy, an inveterate worker and one of those gentlemen who leaves an excellent impression wherever he goes. With marked success he covers twenty-two states for the Frick Company, including the central, south and western states.

Mr. Paltridge was graduated from the Kalamazoo, Mich., high school in 1895. Later he graduated from the Kalamazoo college and in 1900 he was graduated with honors from the University of Chicago. During all his school work, engineering and the study of electricity had been his specialty. Upon graduation, therefore, he became connected with the Western Electric Company and later with the Western Steel Car and Foundry Company.

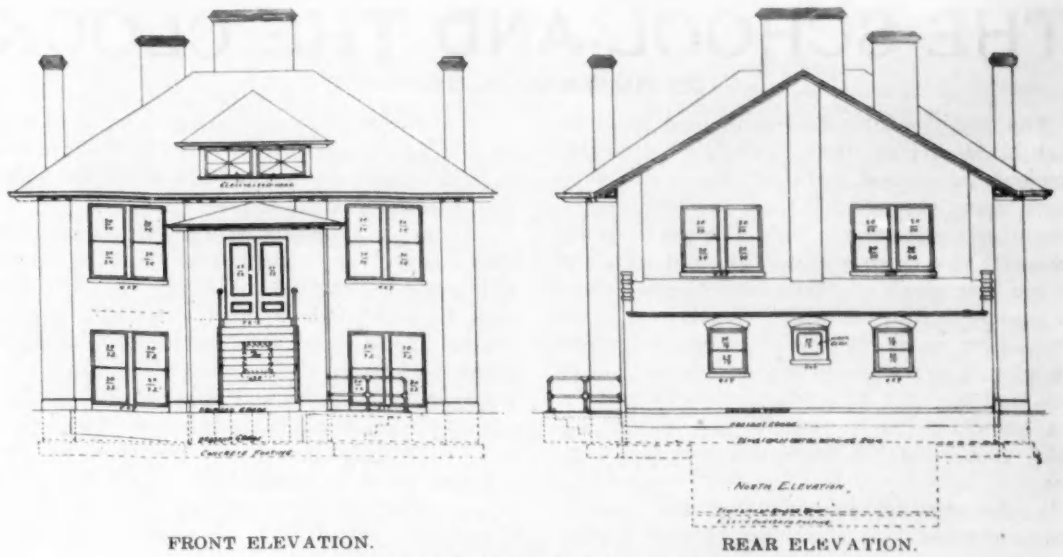
MR. R. W. PALTRIDGE,
Chicago, Ill.

In 1903, Mr. Paltridge started in business under the firm name of Morris and Paltridge, which, about a year later, was succeeded by R. W. Paltridge & Co. General electrical construction became the business of the new company with special facilities for electric hoists for steel curtains which were widely installed by the Chicago theater. At the same time shade hoists were placed on the market and met with general favor.

For several years now, telephones and program clock systems with secondary clocks and bell attachments have been a specialty with Mr. Paltridge. His method of installing clock and bell systems on storage batteries has greatly improved the entire field of electric program and secondary systems, and contributed a large share in putting the entire idea on a sounder basis.

One of his specialties is a line of adjustable metal shelving designed by the company and made specially for smaller public and high school libraries. The metal shelving is now installed in many cities and meets with continued praise wherever it is placed. His motto is "metal shelving costs no more than wood."

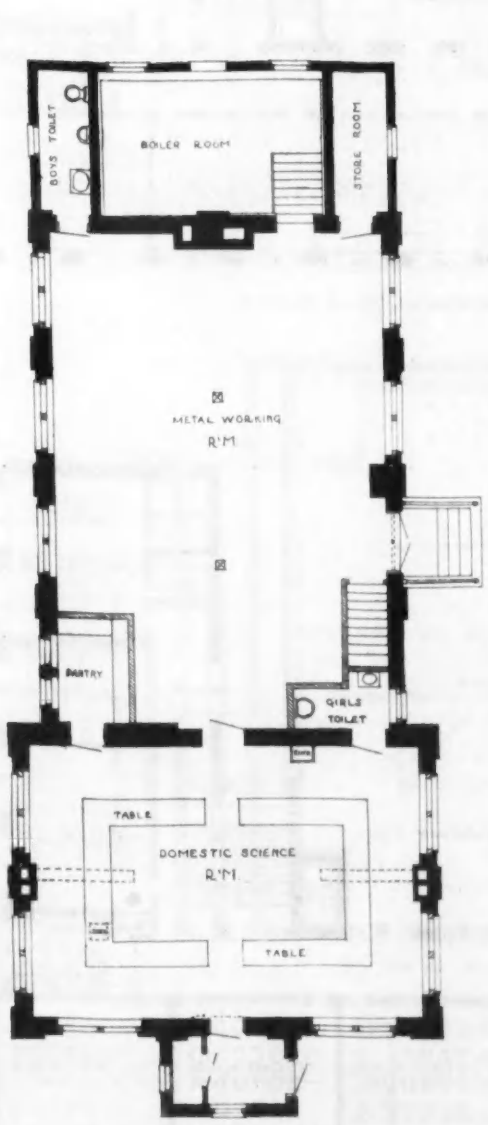
One has but to keep in touch with current literature to note the educational unrest and the criticisms passed upon our present system! We so often hear it remarked: "The education received in our academic school alienates our boys and girls from the things they are to do when school days are over." Ninety per cent of our boys and girls never get beyond the grammar grades or rural schools. Our high schools are dominated by colleges and universities and because of this fact the ninety per cent fail to receive a practical education.—Supt. J. C. Brockert, Grant County, Wis.



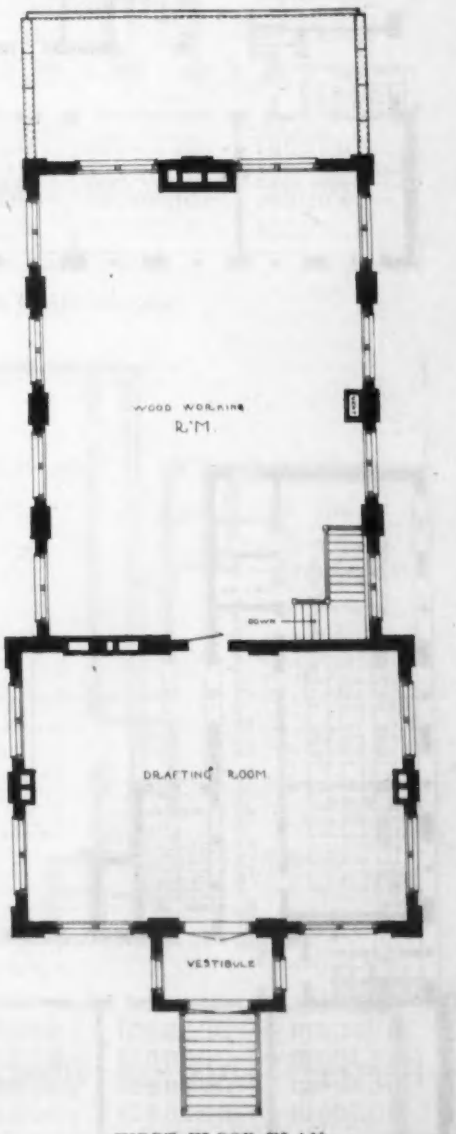
FRONT ELEVATION. REAR ELEVATION.

NEW MANUAL TRAINING BUILDING, URBANA, O.
Gustave W. Drach and William F. Miller, Architects, Springfield, O.

SIDE ELEVATION, URBANA MANUAL TRAINING SCHOOL.



BASEMENT PLAN.



FIRST FLOOR PLAN.

(See page 33)

MANUAL TRAINING SCHOOL BUILDING, URBANA, O.

THE SCHOOL AND THE CLOCK

By HOWARD H. GROSS

The evolution of school equipment from the slab bench and the three R's to the adjustable, hygienic school desk and mud pies, is only three score years, yet in much less time the conception of education in the light of experience and necessity, has been recast. The old idea was to see how much of "facts and figures" could be crammed into the child's head in a given time—how much he could memorize. Now the plan is to see how much we can get out of him, and to teach him how to classify and index knowledge so he may be able to put his hand upon whatever he desires to know more about.

In the physical equipment of the modern school, composed of a number of unit rooms, wherein the work is systemized—and it is only by system that the loss of time and effort can be minimized—no feature has a higher value than accurate and reliable clock with program signals promptly given. If the teacher knows her clock is right, and that the signal will come as expected, she can so plan her work that she will be ready when the signal comes. Alas, how few teachers have such clocks. Most of them seem to be lineal descendants of Ananias and Sapphira.

Notwithstanding all this, however, clocks seem to be indispensable, and for twenty years the rule has been to supply them, and with this hit and miss outfit teachers have worried along as best they could. The principal's office was

MR. HOWARD H. GROSS.
Chicago, Ill.

usually supplied with a "regulator" and the obligation was upon him to press the button at the proper time for program signals. This required the principal to be in his office watching the clock, when he ought to have been in one of the rooms watching a recitation. Sometimes this duty was delegated to a pupil, and the less said, the better as to how it was done.

Then the program man came along, with at first a somewhat crude device, whereby the clock mechanism would ring the bells. This was a great and a welcome relief, but it did not bridge the difficulties, as it was found impossible to keep the clocks in the various rooms in agreement with the program clock. The variation would be anywhere from one to ten minutes, either fast or slow. This was always the case, notwithstanding the fact that the clocks were to be "set" at least once a week. It did not matter whether a finer adjustment and better results were possible, it seldom or never was obtained.

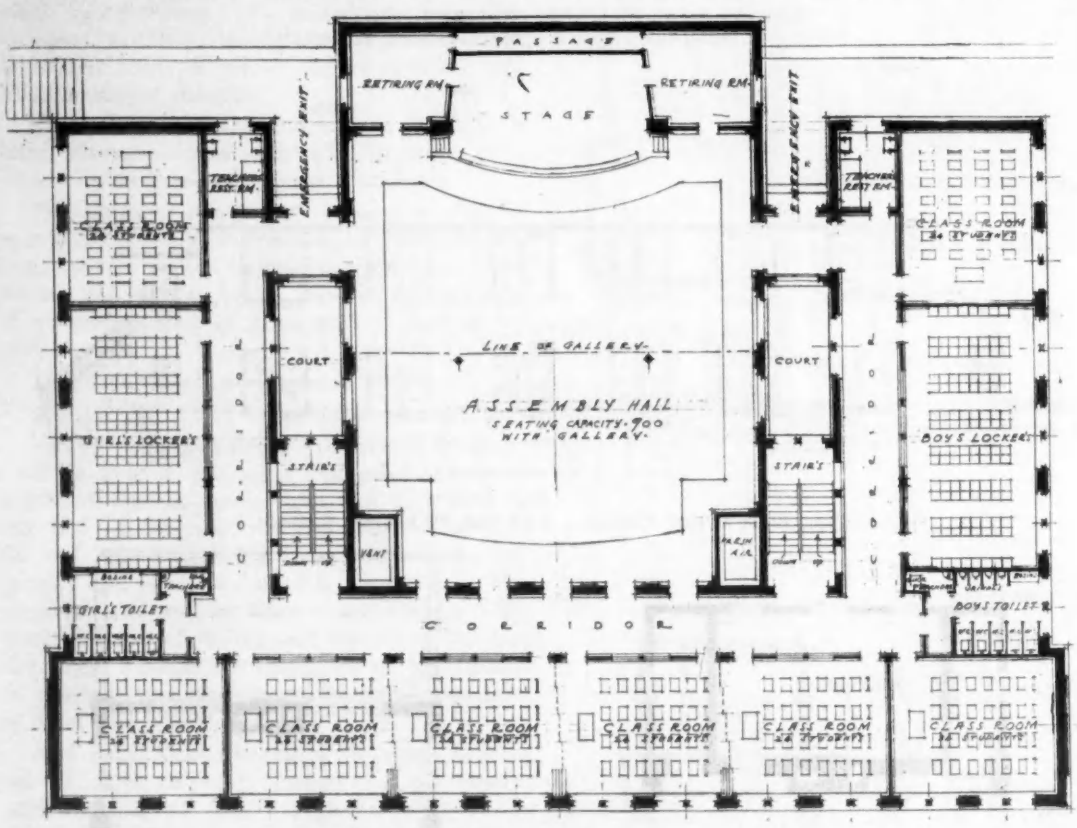
Thus the teachers and the pupils lost faith in a clock that was fast one day, then perhaps right one day and slow the next. Because of this uncertainty recitations were broken in upon by signals at exactly the wrong time, leaving the work ragged, incomplete and the value of the recitation impaired anywhere from ten to fifty per cent. The teacher, glancing at the clock, thinks she has ten minutes in which to make clear and drive home the essential features of the matter under consideration. In the midst of her explanation, when everyone is interested and grasping the truth, the bell sounds and the work, though unfinished, must be brought to a close.

The following incident will show why the teacher was misled by her clock:

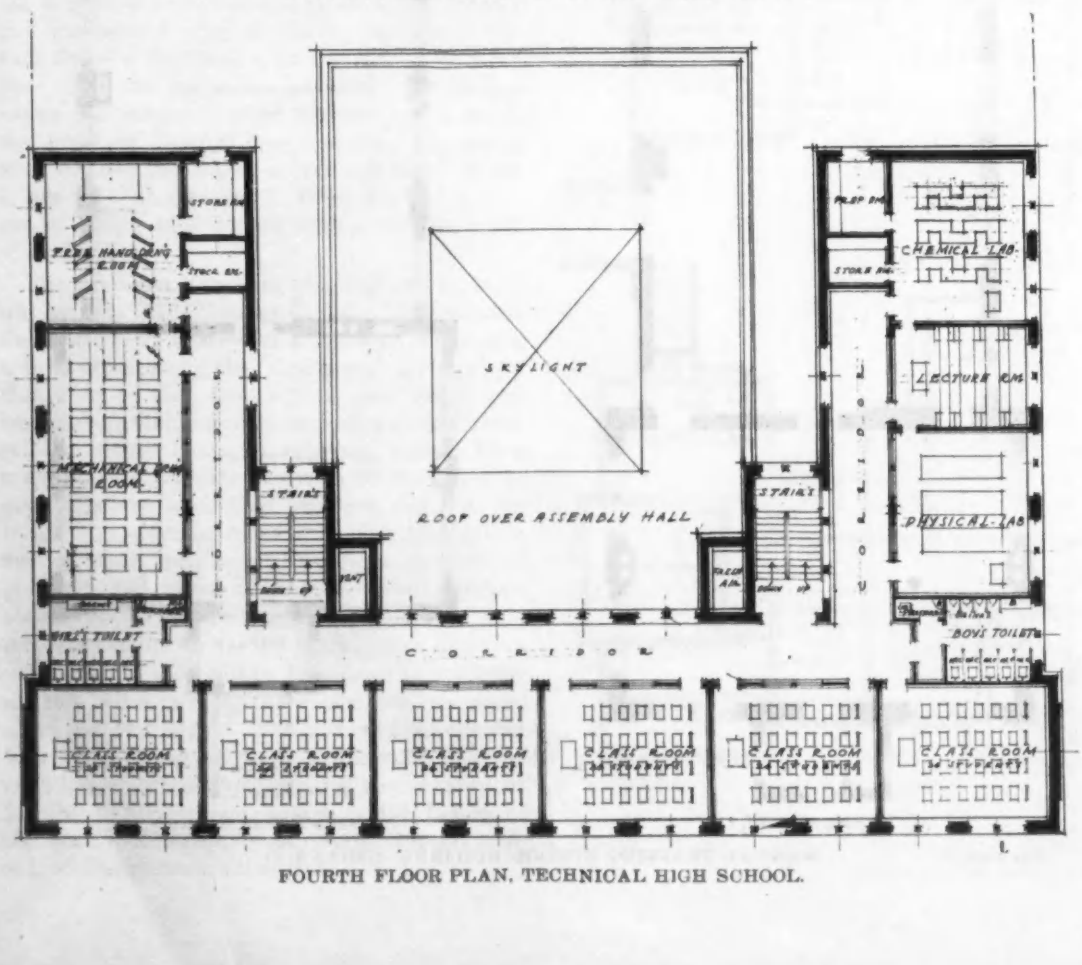
The writer asked the janitor of a large school how he managed to keep his clocks regulated. His reply was:

"Well, you see some of the clocks goes fast and some of them goes slow. I sets them once a week, and if I have time I sometimes sets them twice. Some clocks goes fast, two or three minutes a week, and others goes as much as ten minutes fast, while others goes that much slow. They won't stay together, so when I sets them I puts the slow going clocks a little ahead of time, and the fast goers I puts slow, so it keeps them a little nearer together that way," and there you are.

It is the world's experience that when any great need appears, some genius comes forward with a device to fill it. Thus the clock makers, after years of labor, have developed a clock sys-



SECOND FLOOR PLAN, TECHNICAL HIGH SCHOOL.



FOURTH FLOOR PLAN, TECHNICAL HIGH SCHOOL.

tem whereby a controlling or master clock will operate and synchronize any required number of secondary clocks in any building or group of buildings, giving the exact time at all points. The advantages of this to a school are so self-evident that no argument is necessary to one familiar with the conduct of a large school. Program devices, operated by the master clock, are arranged to ring the signal bells at any moment desired. The periods may be regular or irregular, a different program may be had for different rooms or group of rooms, or a separate program for different days. In most easily change the schedule at pleasure.

A first class clock and program system, whereby all the clocks are kept correct and in agreement, with program signals, given on the moment with unfailing certainty, is a God-send to the teacher, removes friction, saves loss of time, prevents confusion, lessens the wear and tear upon nerves and promotes order, discipline, promptness and efficiency.

Dr. John W. Cook, President of the DeKalb, Illinois Normal school, and one of the foremost educators in the land, speaking of such a system, which he has just put into his building, says:

"The system is now in working order and is found to be of great assistance to the management of the school. It increases the teachers' efficiency by a tangible percentage, since it enables them to plan their work more carefully than they could otherwise do without an accurate timepiece under their eyes constantly."

Educators who have had experience with clock and program systems that are reliable and may be fully depended upon to do the required work, will agree that the saving of time and the increase of efficiency and order, if it could be expressed by the dollar mark, would represent more than the total cost of the clock system every year. Thus a time system is an investment that pays daily and hourly dividends. It should be unnecessary to say that a system that is continually out of order, or is so complicated that it takes an expert to handle it, is a nuisance and not a benefit.

In closing, the writer does not think he could do better than to quote from the principals of two large city schools upon the question of a clock system:

"Such a system would solve a lot of program troubles and would relieve the principal of the responsibility of seeing that the signals are promptly given, and enable him to devote more time to school supervision. A school clock ought to be respectable and keep time. As a rule it is not so. Young people get the habit of thinking a clock is wrong because they see daily and almost hourly evidences of it. Valuable minutes are lost and confusion results. With such clocks punctuality and good order are out of the question."

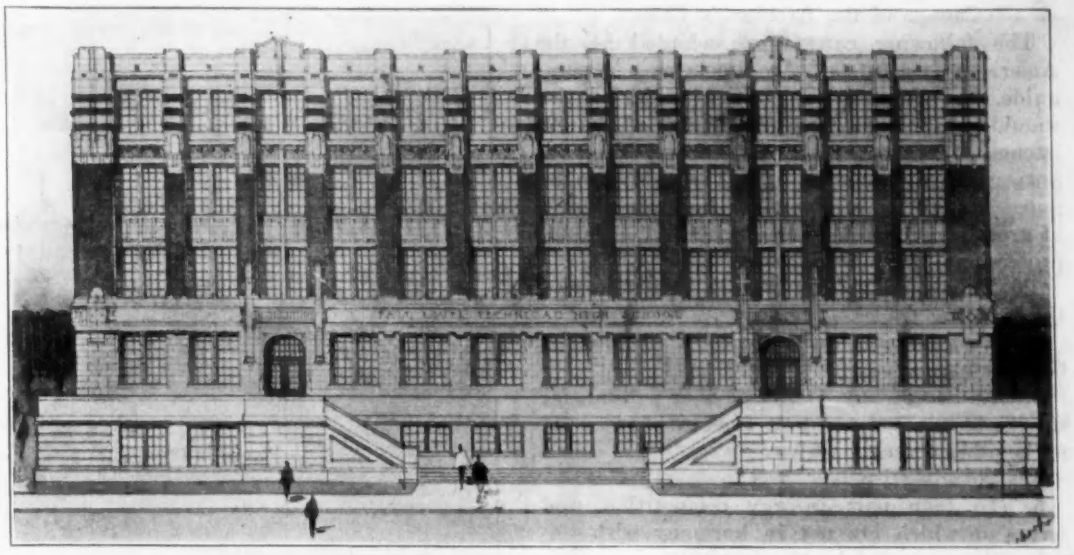
Another says:

"Such a system must certainly save time, secure promptness and greater energy and efficiency in the way of recitations. There would be less temptation to waste time for incidental matters and drag the recitation over into the period of another subject."

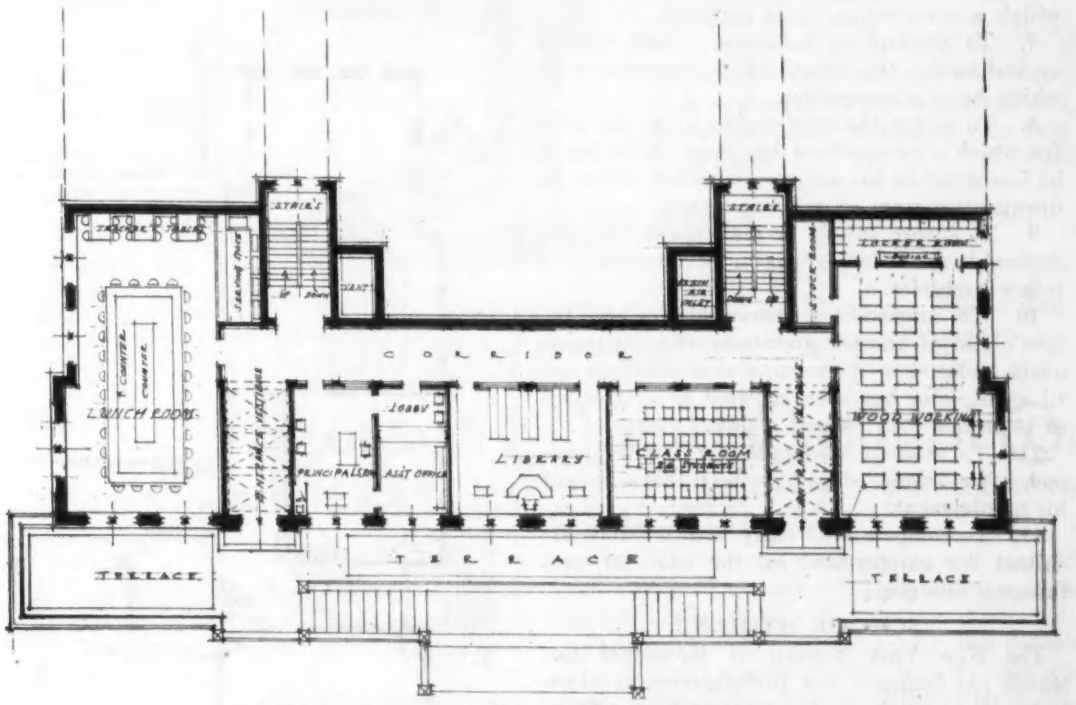
A System.

1. The principal duty of a community is to elect its board of education.
2. The principal duty of a board of education is to elect its superintendent.
3. The principal duty of a superintendent is to elect his teachers.
4. The principal duty of a teacher is to do as the superintendent directs—principally to learn.
5. The principal duty of a pupil is to obey.

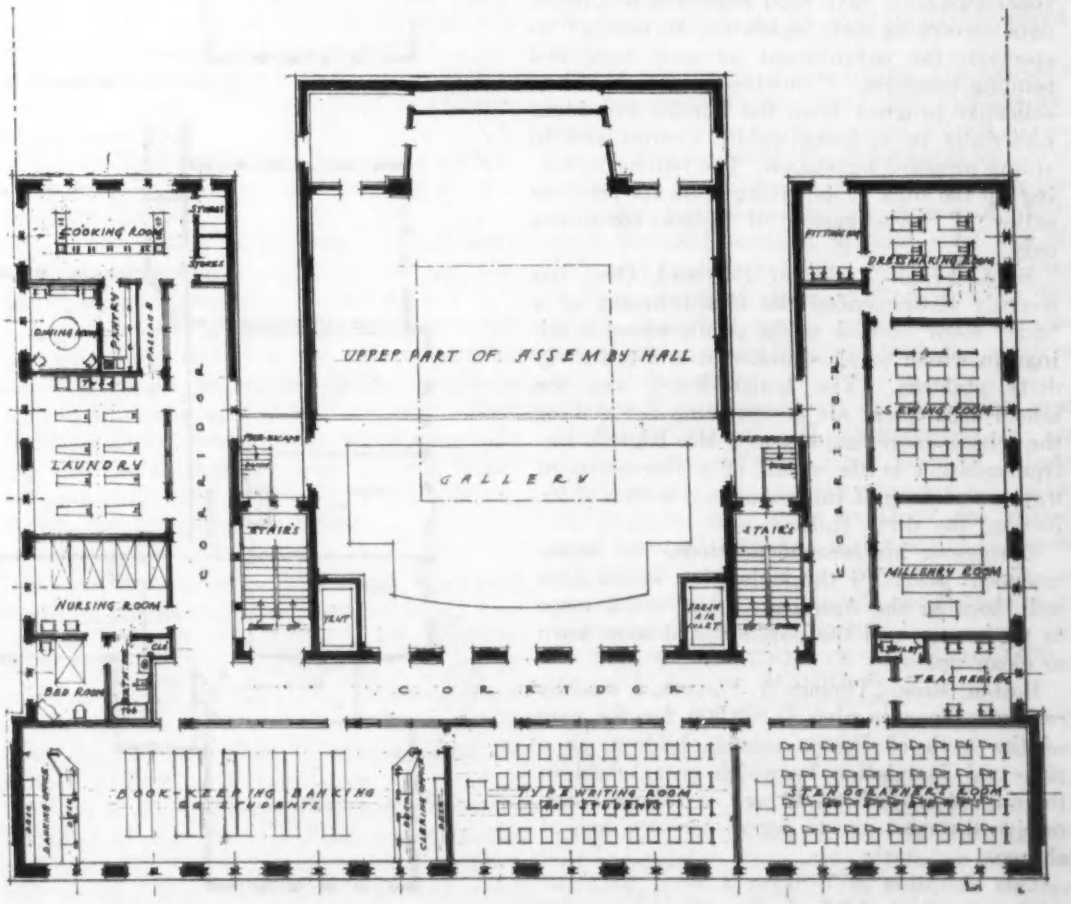
—H. Wilbur, District Superintendent, Swanton and Highgate, Vermont.



DESIGN FOR A TECHNICAL HIGH SCHOOL.
Squires & Winkoop, Architects, New York City.



FIRST FLOOR PLAN FOR A TECHNICAL HIGH SCHOOL.



THIRD FLOOR PLAN FOR A TECHNICAL HIGH SCHOOL.

Canons of the Architect's Ethics.

The following canons are adopted by the American Institute of Architects as a general guide, the enumeration of particular duties should not be construed as a denial of the existence of others equally imperative, although not specifically mentioned. It should also be noted that the several sections indicate offenses of greatly varying degrees of gravity. It is unprofessional for an architect:

1. To engage directly or indirectly in any of the building trades.
2. To guarantee an estimate or contract by bond or otherwise.
3. To accept any commission or substantial service from a contractor or from any interested party other than the owner.
4. To advertise.
5. To take part in any competition, the terms of which are not in harmony with the principles approved by the Institute.
6. To attempt in any way, except as a duly authorized competitor, to secure work for which a competition is in progress.
7. To attempt to influence, either directly or indirectly, the award of a competition in which he is a competitor.
8. To accept the commission to do the work for which a competition has been instituted if he has acted in an advisory capacity, either in drawing program or making award.
9. To injure falsely or maliciously the professional reputation, prospects or business of a fellow architect.
10. To undertake a commission while the just claim of another architect, who has previously undertaken it, remains unsatisfied, or until such claim has been referred to arbitration or issue has been jointed at law.
11. To attempt to supplant a fellow architect, after definite steps have been taken toward his employment.
12. To compete knowingly with a fellow architect for employment on the basis of professional charges.

SCHOOL HYGIENE.

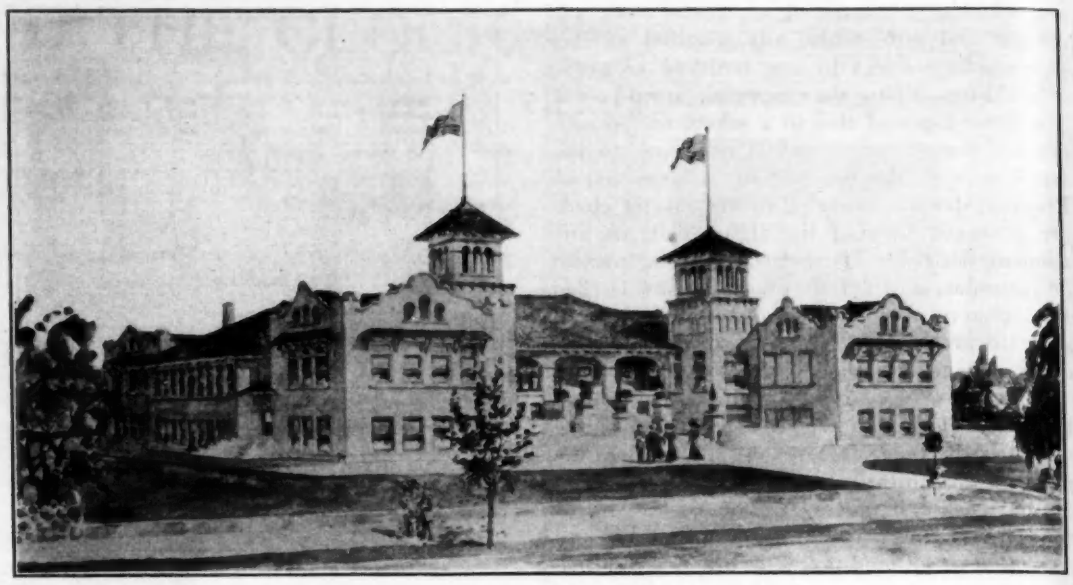
The New York Bureau of Municipal Research has begun a new investigation of physical welfare work in the public schools. State superintendents have been requested to furnish data concerning state legislation on medical inspection, the enforcement of such laws and pending measures. Undoubtedly a statement of collective progress from the bureau will assist materially in arousing public interest and in aiding proposed legislation. The bureau in taking up the work is departing from its previous policy of investigation of urban conditions only.

Supt. Frank Rigler of Portland, Ore., has recently recommended the establishment of a "dirty room" in each of the public school buildings in which to place unkempt and positively dirty children. The health board and the school department are co-operating for making the schools more sanitary and Mr. Rigler's recommendation is the result of a discussion of ways and means of improving one source of infection, the dirty child.

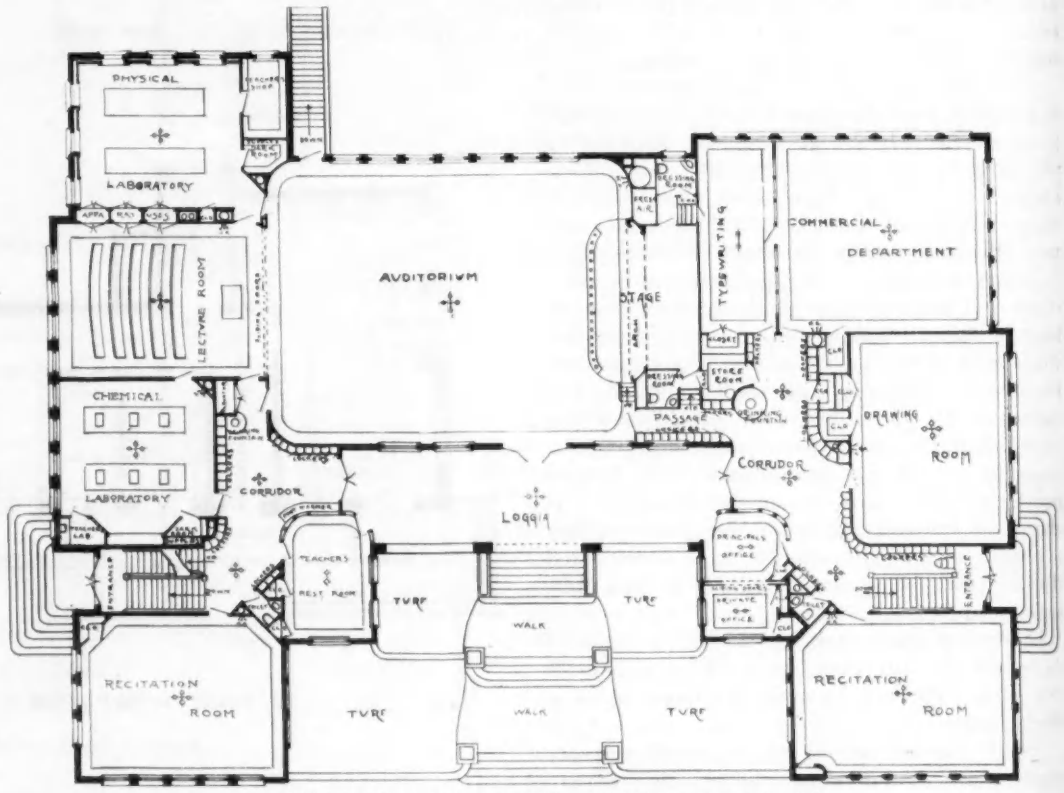
Discussing his recommendations, the superintendent said: "I think the plan would work well, because the American spirit would come to the rescue, and the pupils would soon learn to clean up."

Boston, Mass. Thomas A. Forsyth, a wealthy resident, plans to give $2,000,000 for the care of the teeth of Boston school children, as a perpetual foundation by which every child in the city from birth to the age of 16 years may receive the most expert dental services free of charge.

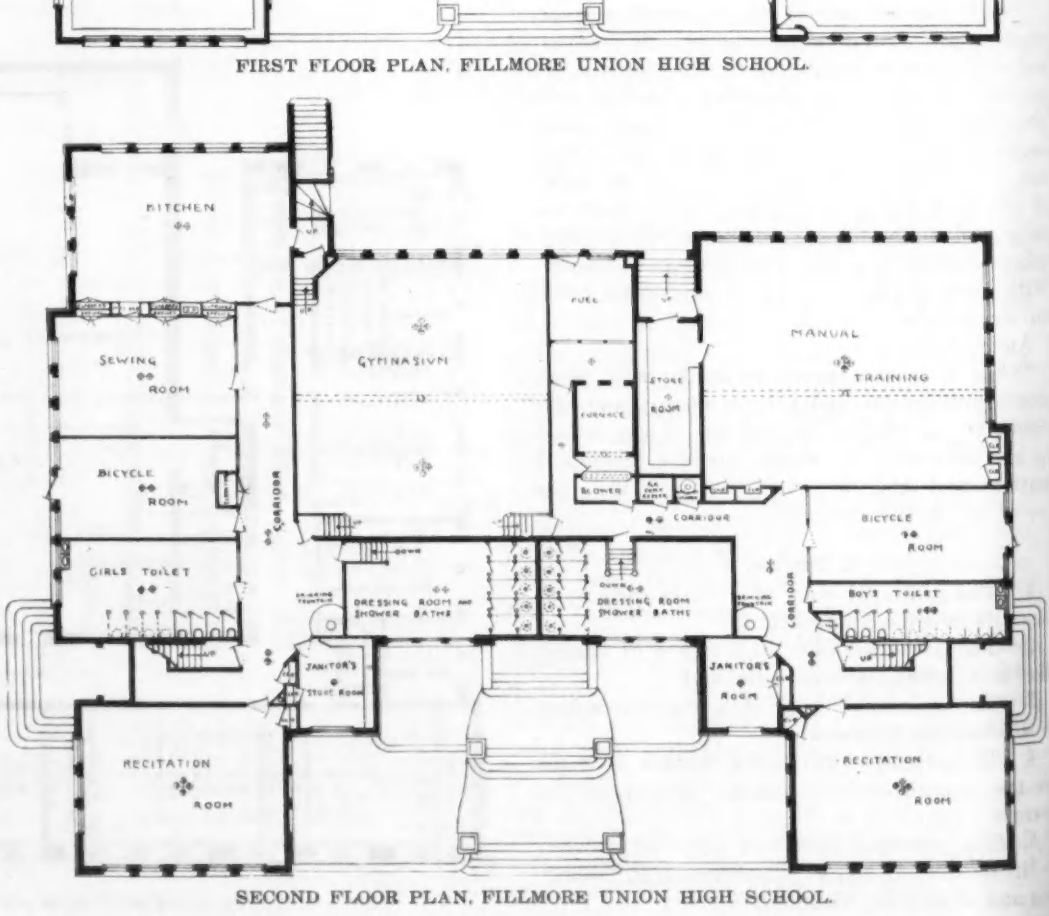
This donation will prove a boon to thousands of school children who otherwise never



NEW UNION HIGH SCHOOL, FILLMORE, CAL.
A. C. Smith, Architect, Los Angeles, Cal. (See page 31)



FIRST FLOOR PLAN, FILLMORE UNION HIGH SCHOOL.



SECOND FLOOR PLAN, FILLMORE UNION HIGH SCHOOL.

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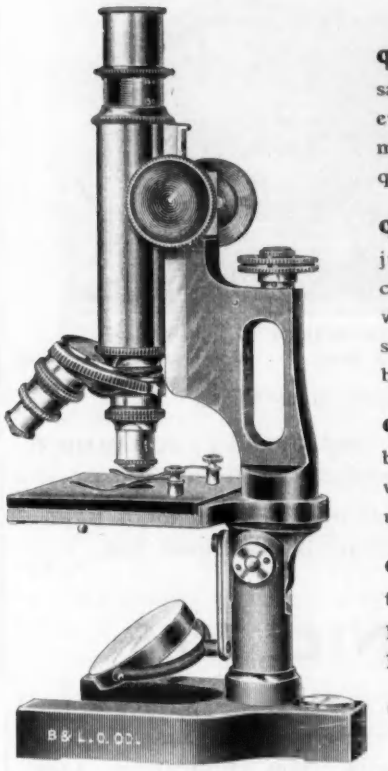

¶ Our BH 4 model is equipped with the same standard grade of objectives and eyepieces which we use on our instruments of higher price—we make but one quality.

¶ This instrument has the lever fine adjustment which gives great delicacy combined with a slow steady motion which is characteristic of high grade instruments and which is the result of the best mechanical construction.

¶ The handle arm which permits it to be carried from one place to another without injury adapts it particularly for use in the class room.

¶ Complete with 16mm and 4mm objectives 5x and 10x eyepieces, circular dust-proof nosepiece, mahogany case, list price $30.00.

¶ Descriptive literature on request.

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would have this care. The money, with a part of which will be erected a building equipped with every modern apparatus known to the dentist's art, and manned by a corps of the best dentists in the state, already has been set aside by Mr. Forsyth.

Indianapolis, Ind. The school board has changed its policy in conducting the medical inspection of school children. The system was introduced in January of this year, and a complete inspection of all children was undertaken. A card index was started, but the doctors soon found that the enormous detail connected with listing and examining 30,000 pupils interfered with the attention which sick and defective children deserved. Data relating to the last named only will be collected in the future.

Program for Hygiene.

With a splendid record for improving sanitary conditions and for introducing practical hygiene as a study, the Toledo schools have adopted a program for further improvement in school hygiene.

Following are a few of the important things which are advocated: Sanitary drinking fountains in all buildings.

Hygienic bathing facilities, tubs, showers and bowls as needed.

Individual paper towels for hands and face.

Less dust scattering in all rooms by broom and duster by use of a dust down or vacuum cleaner, more frequent scrubbing and moistened cloths for dusting.

Absolutely sanitary toilets, with intelligent and competent janitor service, responsible in sanitary questions to the department of hygiene with power to act.

Well drained and graveled school yards wherein every boy and girl may play and yell at vigorous play.

Play space in each school building where in inclement weather vigorous play and exercise may be substituted for the limited exercise possible in the school room.

More rules of every day health taught, particularly to our less fortunate children, from foreign and poorer homes, instead of technical physiology.

Better ventilated school rooms with power given to the department of hygiene to enforce its recommendations.

Older children in lower grades given a chance to substitute manual for one or more of the secondary studies.

Every schoolroom in the city supplied with a number of adjustable seats of the best design to prevent deforming the children.

As 90 per cent of the children never enter high school and those who do cannot work to advantage unless physically efficient, emphasis needs to be placed upon giving the ward school children a square deal in their school surroundings and the department urges parents to investigate their own children's school and cooperate for the right conditions.

In commenting upon the recent report of Supt. W. H. Maxwell that three of every four children in the New York public schools suffer from some physical defect, Mr. Leonard P. Ayres of the Russell Sage Foundation, said last month that an enormous money waste results from the fruitless effort to educate these defective children.

"Take a single illustration, that of decayed teeth," said Mr. Ayres. "The great English physician, Dr. Osler, recently said more physical deterioration was caused by bad teeth than by alcohol. The figures just published by Mr. Maxwell show that among the 320,000 children examined last year, 184,000 were found to have defective teeth.

The investigation conducted by the department of child hygiene of the Sage Foundation, shows that children having defective teeth take half a year longer to complete the elementary school course than do the children having sound teeth.

"Just how much these children are retarded it is impossible to determine with absolute accuracy, but a very extensive and careful examination carried on by the department of child hygiene of the Sage Foundation, covering the complete physical and school records of about eight thousand, brought to light some significant and important facts. It was found that children suffering from such defects as the school physicians record progress through the course nine per cent. slower than the children with no defects.

"New York expended on its schools last year nearly $35,000,000. If three-fourths of the children are suffering from physical defects, which cause them to make nine per cent. slower progress than they would if the defects were removed, it means that the city has spent $2,400,000 a year in a useless attempt to impart knowledge to pupils who are physically incapacitated for receiving it."

THE CLASSROOM IN ELEMENTARY SCHOOLS.

(Concluded from Page 8)

bered that the intensity of light diminishes in the ratio of the inverse square of the distance. This diminution does not include two reflections and the possibility of imperfect reflecting surfaces. To the present time indirect lighting of classrooms obtained by diffusing the direct rays upon the ceiling of the classroom has been found prohibitive in cost and altogether impractical.

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RULES AND REGULATIONS.

Huntington, Ind. The Huntington county board of education has adopted a rule that no teacher's license will be issued to any person who is an habitual cigarette smoker. No teacher who uses tobacco in any form will be recommended for appointment in any of the elementary or high schools of the county. The board has issued a statement that the rule is only the logical result of teaching the harmfulness of narcotics to children. It is held that no teacher can properly impress the dangers of tobacco if he himself smokes.

Worcester, Mass. The school committee has recently adopted the following rules providing for the appointment and duties of a "supervisor of attendance:"

At the regular meeing in the latter part of June, when teachers are elected, or whenever a vacancy occurs, upon recommendation of the committee on private schools and truancy, the school committee shall appoint or elect a supervisor of attendance, in the same manner in which teachers are appointed or elected, and fix her salary.

The supervisor of attendance shall be a woman who has had experience for the work assigned her. She shall be under the control of the superintendent and the committee on private schools and truancy, and shall report for service at such times and places as they may designate.

It shall be her duty to investigate the causes of non-attendance at school, as directed by the superintendent, to give advice to parents and teachers in regard to the treatment of unfortunate or disorderly children, and in general to endeavor to establish a closer relationship between the home and the school.

She shall also make to the superintendent detailed reports of her doings upon blanks furnished for the purpose, which reports shall be submitted to the school committee whenever required; and she shall perform such other duties as the superintendent may direct.

Lowell, Mass. The school committee has so amended its rules that teachers and other employes will be permitted to draw their own salaries only. Evasion of the rule will be followed by dismissal.

The school board of Elgin, Ill., has recently adopted a rule forbidding admission of children suffering with communicable diseases. It reads:

"No pupils known to be affected with a contagious or infectious disease, such as smallpox, diphtheria, scarlet fever, measles, whooping cough, chicken pox, mumps, or any generally admitted communicable disease, or coming from a family where such diseases prevail, shall be allowed to remain in the schools.

EDWARDSPORT HIGH SCHOOL.

(Plans, page 12)

A very simple high school in the renaissance style of architecture. The walls are built of brick and the exterior is faced in a vitrified paving brick and Bedford stone. The roof is slate with metal cornices and Spanish tile coping. The foundation footings are heavy concrete and the basement floors are cement.

The floors are of wood, with asbestos covered felt sheathing between to render them slow burning and sound proof. The classrooms and halls are finished with yellow pine, hard plaster in a gray finish, and floors of riff sawed 2½-inch yellow pine. The blackboards are of an artificial cement composition.

The total seating capacity of the school is 300 students, although the classrooms will accommodate 350 if all seats are taken at one time. The study hall will hold 200.

The heating and ventilating system consists of a low-pressure gravity steam plant. To meet the severity of the climate, two-thirds of the radiation is direct and one-third is indirect. The arrangement has given perfect satisfaction and insures a comfortable temperature in the severest weather. The heating and ventilating plant cost $2,100 complete.

The laboratories are arranged to be equipped with modern furniture, which will be installed after the close of the present school year.

The entire building is equipped with water and electric lights. Hygienic drinking fountains are placed on each floor, and the plumbing is erected and vented according to the requirements of the Indianapolis plumbing code and the rules of the Indiana State Board of Charities. The building cost $21,750, complete.

SCHOOL ARCHITECTURE.

(*Continued from Page 4*)

lessening of humidity in a room heated by steam, so clearly shown in the shriveled condition of plants kept in such room, may be largely overcome by the aid of what is called an air moistener, which may be hung on the back of a radiator and out of sight.

Permit me to say in conclusion that no school authorities should plan a school building before visiting another city known to have a modern school building and noting points of special interest. They should then employ an architect and instruct him before drawing his plans, to make a like tour of inspection. For, until we have distinctly school architects, we must depend largely upon our judgment of what seems to us to be the best as represented in buildings expressive of the best thought and experience of others interested in improved school architecture.—Address before Iowa Teachers' Association.

ABRAHAM LINCOLN SCHOOL.

(Concluded from Page 2)

first, and two additional rooms above the stage. These four rooms are the only rooms which have no sunlight at some time during the day. The building has four staircases.

Owing to the shape of the lot, rigid economy of space became a necessity, and therefore the ordinary cloakrooms have been replaced by recessed wardrobes. The clothing is hung in a recessed space at the end of each classroom, which is closed with balanced sliding doors that lift like a sash. The recess is vented independently of the classroom.

One classroom on each floor is to be a fresh air room, the windows arranged to open outward. It will be possible to thus isolate children inclined to tuberculosis and give them an opportunity of recovering while recovery is still easy.

The heating is effected by a steam plant with fan ventilation. The steam system is a combination of pump and receiver and gravity return. During school hours the condensation will be returned to the boilers by means of a steam pump. When the steam pressure is dropped after school hours the water will be returned to the boilers by gravity through by-pass valves. Fresh air will be delivered to the classrooms by a steel plate plenum fan, belted to a steam engine operating at twenty-five pounds pressure. While the engine is running, steam for heating the building will be taken through reducing valves, the maximum pressure being about five pounds. The exhaust steam from the engine will be utilized for the same purpose after passing through a separator. Aspirating coils will be placed in all the vent flues to assist in removing the foul air from the rooms.

Three horizontal return tubular boilers of ninety-eight horsepower each will furnish power for the engine and for the heating system.

The total radiation to be installed will be 15,541 square feet, comprising indirect radiators in the main heating chambers, wall radiators on the outside walls of classrooms, foot warmers and ceiling coils in the basement. Wardrobes will be ventilated by means of galvanized iron ducts connected directly with the classroom vents.

The fan will be a twelve-foot steel plate fan running at a normal speed of ninety-eight revolutions per minute and delivering 72,000 cubic feet of fresh air in that time.

The classrooms and assembly hall will be equipped with automatic temperature control. Thermostats will be placed under the main fresh air ducts and connected to mixing dampers in the primary heating chamber to maintain the air in the ducts at 68 degrees Fahrenheit. The wall radiators in each classroom will be under the control of a thermostat located in the room.

All water closets in the basement sanitaries will be provided with seat ventilation connected together by means of galvanized iron ducts and run in two separate flues to the top of the main ventilators. Connection will also be made to the space at the back of the urinals. Ventilation will be assisted by aspirating coils in the main flues and two motor-driven exhaust fans. The individual closets will be similarly vented.

The horizontal fresh air ducts in the basement will not be hung under the ceiling, as is usually the practice, but will be located below the floor and will be built of concrete. This method of construction has been found particularly successful in Boston schools and has been developed under the direction of Mr. R. Clipston Sturgis, chairman of the schoolhouse commission.

The building will be equipped with electric lights and intercommunicating telephone system, an electric program clock with program bells, a combination local and auxiliary fire alarm system and a projection lantern with reflectoscope for the assembly.

All of the construction will be first class, according to the standards adopted by the schoolhouse commission. It is expected that the cost of the building will not exceed $160 per pupil. The sum of $440,000 is available for its construction.

A MANUAL TRAINING SCHOOL.

The introduction of manual training as a branch in the public schools of many cities has been slow because of the lack of accommodations and the unwillingness of school boards to make a large outlay for buildings. In this connection the new Central manual training school, under construction at Urbana, Ohio, is interesting. It represents a pleasant solution of the problem of an adequate building at a very low cost. It may be said in passing that the classes from all the schools in the city will receive instruction here, for two or more periods a week, so that the structure will be in use at all times during school hours.

The building is being erected of red pressed brick with stone trimmings and slate roof. The entire foundation is concrete. There will be no plastering in the interior, but the walls will be laid with good brick and struck joints and then given two coats of white cold water paint. The ceilings will be of wood. Practically all interior trim will be omitted, but doors, frames and sashes will be painted white.

The first floor, which will be used for heavy machinery for wood and metal working, will be two feet six inches below the grade level. The floor will be of rift yellow pine on oak sleepers, imbedded in concrete. The boiler room has been sunk six feet below the first floor level to procure proper depth for the water line in the boiler, below the wall radiators on the first floor.

(Concluded on Page 34)

Dust Evacuation

We ask all school authorities, and all parents among them, especially, if the transmission of Tuberculosis, pneumonia, influenza, grippe and all the other so-called "infectious" diseases is still a mystery to any of them—that is to say, the manner of its transmission?

Any physician will tell you that every ounce—every grain—of the dust of city and village streets contains millions of the germs of disease.

These germs all come from persons suffering with the "infectious" diseases.

One careless consumptive may spit upon the street enough Tubercle Baccilli to infect and perhaps kill dozens of people.

When the spit becomes dry it is blown about as dust, or is picked up in the form of mud on shoes and skirts and carried into homes and schoolrooms, where it is dried, ground to powder and churned into the air by every movement in the room.

This process of transmitting disease has always been going on.

The death-rate has been steadily increasing for centuries.

Tuberculosis alone kills more than 150,000 Americans annually! (See U. S. Mortality Statistics, 1907, page 501).

The Anti-Tuberculosis organizations of the world are now spending millions yearly in trying to stop the further spread of infection.

Dust is the Chief Disease Spreader

The schools are the greatest dust factories of all indoors.

Our children must be confined in this highly infectious atmosphere for hours every day, five days each week, forty or more weeks each year—*Unless Vacuum Cleaning Systems are installed in the school buildings,* and these systems must be *practical, efficient, substantial, dependable.*

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If you would invest your taxpayers' money wisely, you should investigate vacuum cleaning apparatus carefully.

Unless you are fully informed, by experts who have the confidence of the leading architects, engineers and great building owners of the country, you are practically helpless, when it comes to making investigation—for Vacuum Cleaning is a new, (though none the less a *real*), science.

Unless you are fair to yourself, to your constitutents and the manufacturers of the Aero Special Schoolroom Cleaning Systems, and investigate thoroughly and rightly, *we* are helpless when it comes to putting the candid truth against the unsupported assertions of those who try to imitate our systems, and who seek to convey the impression that their outfits are "just as good as the Aero Systems."

Your public will ultimately *demand* that its schools be made hygienically dustless. Health authorities and the Anti-Tuberculosis Societies are rapidly educating the people up to the point of understanding. Their efforts are world wide in scope.

Let Us Help You to Anticipate Public Demand

We maintain a correspondence department especially to answer questions asked by school authorities, and will do the best we can to inform you by mail.

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614 ARCH STREET PHILADELPHIA

The Study of History in the Elementary Schools.

Report to the American Historical Association by the committee of eight. Cloth. 241 pages. Scribner's Sons, New York.

One result of the annual meeting of the American Historical Association in 1905 was the appointment of a committee of eight to make a program in history for the elementary schools. To learn what had been done thus far in this direction, the able report of the Madison conference on history (1892) and that of the committee of seven (1898), were studied. Teachers of history in elementary schools were consulted. Three members of this committee spent some months in observing work in England, Germany and France. Thus a careful study of existing conditions preceded the formulating of this report.

Indian life so closely connected with that of the early colonists, public holidays, historical scenes and persons in American history form subject-matter for the first five grades. Good outlines, lists of varied reading for teachers and for children, some study of art and literature linked with the life of individuals and of communities, render this an unusually broad course. In the sixth, seventh and eighth grades a few great incidents and typical characters of the ancient world have been added. This is well, for are we not the heirs of the ages? There is a good deal of the early movements and history of the English, to explain what America started with. Every apparent digression has for its end the better understanding of the America of today.

A much-needed book. It is only recently that we have begun really to study history. It is only recently that popular teaching has begun to take into account the influence ancestral strains, geographical, industrial, political conditions have had upon the present. The report bids fair to widen and deepen a historical sense.

Wood Turning.

By George Alexander Ross, instructor in charge of wood turning and pattern shops, Lewis Institute, Chicago. 12mo. Cloth. Illustrated. 76 pages. List price, $1.00; mailing price, $1.05. Ginn & Company, Boston, New York, Chicago.

The unusual excellence of paper, type, illustrations, working designs, full and explicit directions make these pages fascinating reading even to those ignorant of technicalities. The difference between the cut of a primitive lathe and that of a gap lathe is as great as that between the Clermont and a modern floating palace on the Hudson river.

Wood turning covers a wide range of work. It includes a review of the development of the lathe and its parts, a study of the tools used in turning; an exposition of the various forms of lathe work,—turning between centers, screw-center chuck work, turning to templet, face-plate and bell-chuck work, staining and finishing work in the lathes; and finally, recipes for making and applying stains and waxes.

American Education.

By Andrew S. Draper, state commissioner of education, New York. 376 pages. Price, $2.00, net. Houghton-Mifflin Company, Boston, New York, Chicago.

Andrew S. Draper, commissioner of education of the state of New York, has done a large service by putting some of his own clever papers into book form for the benefit of educators. He deals lucidly with organization and administration, with elementary and secondary schools; the college and the university, and a fourth section of the book is concerned with social aspects and problems. There is an admirable and scholarly introduction by Nicholas Murray Butler, president of Columbia. The book is too full of good things to point out its many fine features in a short notice, not intended for a review. We cannot refrain from quoting, nevertheless, from the paper entitled, "Education for Efficiency," the careful reading of which we heartily recommend.

Mr. Draper writes: "When but one-third of the children remain to the end of the elementary course, there is something the matter with the schools. When half of the men who are responsible for the business activities and who are guiding the political life of the country tell us that children from the elementary schools are not able to do definite things required in the world's real affairs, there is something the matter with the schools. When work seeks workers and young men and women are indifferent to it, or do not know how to do it, there is something the matter with the schools. * * * * Notwithstanding our boasted universality of educational opportunity, there has grown up a condition in the educational system which overlooks the just rights of the wage-earning masses, and grievously menaces the industrial efficiency and the material prosperity of the country. The overwhelming trend of the programs of the schools and the influence of the teachers, acting upon our national temperament and aspirations, has led an undue proportion of youth to literary and scientific study, which too often ends either in idleness and insipidity, or in professional and managing occupations for which they are not well prepared, and which are already overcrowded."

Strong thoughts, these, and worth pondering.

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In appendix A is an explanation of the several kinds of governorships under the empire, a list of the governor provinces as they had developed by the reign of Trajan, with the rank of the governor of each. A valuable summary. In appendix B appears the names and powers of the officials and magistrates at Rome under the early empire. A pronouncing vocabulary of proper names does not appear. It might be helpful.

Poe's Raven, Longfellow's Courtship of Miles Standish and Whittier's Snowbound.

Edited by Charles Robert Gaston, instructor in English, Richmond Hill high school, New York City. Illustrated. Cloth, 196 pages. Price, 25 cents. Charles E. Merrill Co., New York.

The most charactertistic poem of three popular authors are presented in this book. They comprise the poems required for college entrance examinations, which is the editor's reason for issuing them in one volume. The economy of the arrangement is readily apparent. Dr. Gaston's editorial work is splendidly in keeping with the purposes and high standard of the Merrill English Texts.

The Young Malefactor.

A study in Juvenile Delinquency, by Thomas Travis, Ph. D. Introduction by Judge Ben. B. Lindsey. 270 pages. 12mo. Cloth. Gilt top, $1.50 net. Thos. Y. Crowell & Co., New York.

Our young nation is just beginning to feel the money burden of meeting the current expenses of its city, state and general government. Is it often remembered how much goes to maintain our police system, police courts, jails, penitentiaries, and prisons? Crime, from first to last, is costly to all concerned. The state loses directly not only what the criminal costs, but indirectly what he should be and should produce —a double loss. Here is a large field for the sociologist and criminologist.

The author of this scholarly book has done valuable work along these lines. He had not complete faith in the theory of the Italian school who, under the leadership of Ferri and Sombroso, have made physical peculiarities a basis for the classification of delinquents and criminals. Faith was also lacking in the position taken by an opposing school who have not recognized any relation between physique and crime; to its followers all offenders were alike. Was there not a realm, lying between these extremes, deserving careful study? Six years were spent in investigation both in America and Europe. One result is this book giving us more knowledge, more understanding in the problem of so-called crime. A vital conclusion reached in the period of scientific work is that with respect to physical, mental and moral conditions at least ninety per cent and probably ninety-eight per cent of first court offenders are normal. As the Italian school of criminologists are among the best, if not quite the best, in the world, this conclusion should be fully sustained. To this end homes in our large cities from which delinquents come, have been examined, reformatories and industrial schools have been visited; reports of officials and experts have been studied and compared. All sustain the conclusion that the economic, the material conditions of the delinquent, the physical, the mental, and moral conditions of his parents, explain his normal offenses. In other words, he is largely the product of his environment. Of the remaining two to ten per cent "some are insane, some are morbid, some few might perhaps be called, in a metaphoric sense, born criminals." It is not asserted that the Italian theory is entirely untrue, but that its scope is more limited than has been thought. While the causes of delinquency are many and various, most of the data collected goes to show that they all focus in such a way that the poor home is unhesitatingly named as the chief cause. Then follow suggestions for saving these children from the evils of poor homes, without subjecting them to almost inevitable drawbacks of institutional life.

This complete presentation of the subject will educate thinking men and women with respect to the plain duty of the state toward children who may be orphans or worse than orphans, and who are so badly handicapped by their surroundings.

Shakespeare's Midsummer Nights Dream.

Edited by William Allan Neilson, Ph. D. Cloth. 158 pages. The Lake English Classics. Scott, Foresman & Company, Chicago.

The editor's contribution to this number of the "Lake Series of English Classics," is grouped under introduction, notes and word indexes. In the last, only unusual words, or words used in an unusual sense, have been given a place. The notes have the saving quality of brevity, while they are rich in cross-references to other passages in this play, to other Shakesperian plays, and to other contemporary literature. The introduction gives a background to an understanding of the period which

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was an unusual one. United after the prolonged divisions of the Reformation, proud of her success in her fight with Spain, England was sharing with the rest of Europe the intellectual stimulus of the Renaissance. Commerce and exploration were stirring men to deeds of adventure and heroism. The land was throbbing with new life. The drama was also uplifted by the spirit of the period as well as by the practiced taste of the theatre-going public "for clever feats in the manipulation of language, for poems, happy alliterations, delicate melody." Under these conditions, "Midsummer Nights Dream," slight in plot, but full of opportunities for spectacle for song and dance, has made for itself a sure place in the minds and hearts of play-goers.

Broad Lines in Science Teaching.

Edited by F. Hodson, Ph. D., B. Sc. With an introduction by Prof. M. E. Sadler, M. A., LL.D. Cloth, 267 pages. Price, $1.25, net. The Macmillan Co., New York, Chicago.

This is not a text book of science teaching, yet it is to be strongly recommended to all science teachers. The work is a collection of valuable essays from many pens on the necessity and value of science teaching in secondary schools. "Broad Lines in Science Teaching" covers a large field. Most of the cleverly written essays are from English educators of standing, although there are a few American and Canadian writers among them. The work is well worthy of serious study by those who believe that the study of science is destined to take the place of the old scholastician in our secondary schools.

Thackeray's English Humorists.

Edited with introduction and notes by J. C. Castleman, Evansville High School. Price, 25 cents. The Macmillan Co., New York, Chicago.

In addition to a biographical sketch, there are sketches of Swift, Congreve and Addison, Steele, Prior, Gay and Pope, Hogarth, Smollett and Fielding, Sterne and Goldsmith, with notes and index to notes.

Stories of Authors.

By Edwin Watts Chubb, Professor of Literature in the Ohio University. Cloth, 12mo, illustrated. Price, $1.25, net. Sturgis & Walton Co., New York.

The author, Prof. Chubb, asks in his preface: "Am I wrong in hoping that no one, though with but a meagre knowledge of literature, can read these sketches without a desire to know more of the men and women who are the glory of England and America?" The aim of this book is to help in making literature more interesting by introducing readers to the makers of the books they love as these authors actually were in the flesh, and to a large extent the author his succeeded admirably. The book is a thesaurus of information. It is not well to place our literary lights upon a pedestal so lofty that the radiating warmth and light never reaches our hearts.

The arithmetic leaflets issued by THE BRITTON PRINTING CO., Cleveland, Ohio, are for use as supplementary work. Only the problems are given; the teacher supplying the necessary rules. The leaflets are very helpful when used in conjunction with other text-books. In addition to the seven books for the grades, there is a leaflet containing the correct answers to all the problems. Send for free sample.

Rara Arithmetica.

By David Eugene Smith. Edition de Luxe. One Vol., cloth, 500 pages, illustrated. Price, $5.50, net. Ginn & Co., New York, Chicago, Boston.

Rara Arithmetica is a catalog of the arithmetics written before the year 1601, with a description of those in the library of George Arthur Plimpton of New York. It is a book that will be a joy to the gatherers of books quaint and rare. It is in all probability the first data of a history of arithmetic which Prof. Smith will write. The work contains much curious matter and fac simile of many an antique wood cut, as well as much information about the art of numbers. It is said that Mr. Plimpton's collection of text books of arithmetics printed before the opening of the seventeenth century is the largest that has ever been brought together. This work lists nearly twelve hundred arithmetics.

The School Garden Book.

By Clarence M. Weed and Philip Emerson. 320 pages, illustrated. Price, $1,25. Chas. Scribner's Sons, New York.

A thoroughly practical book for the use of boys and girls of school age.

The school garden may be an indoor or outdoor one, though the outdoor one affords the greater range of possibilities. Suggestions and directions are offered for the creation of a favorable public sentiment, for the suitable preparation of soil, for a generous provision of good fertilizer, for arrangement of plots, making exhibits, awarding prizes for best exhibits, gardening for profit, to obtain supplies and enlarge scope of operations.

Part one considers the school garden month by month, beginning in September and giving a chapter to each month. A calendar at the end of each chapter outlines the work of the month. Some of the points in the September calendar are: start cutting of geraniums for window boxes, start bulbs for early winter blooming; prepare a store of soil for use in plotting, gather seeds of annuals and perennials before they are lost from ripe seed pods, clean them and store them in labeled envelopes. January is not a month of idleness, as its calendar contains such items as these: Send for seed catalogues; start cuttings of carnations; order early flower and vegetable seeds; test seeds on hand; transplant into flower pots crocuses, jonquils, and other bulbs.

In part two garden exercises for pupils fill seventy pages in which appear specific directions for indoor and outdoor culture of cuttings, seeds and bulbs. Points are given for keeping an illustrated, descriptive record of the plant, its variety, its size and growth, details of culture, notes of insect pests and other troubles—ah! these are sometimes legion—drawings or color sketches of the plant and its blossoms at different stages.

But the final test of success is the home garden. Instances of such success are not wanting. Here is one. The influence and work of a teacher and her pupils resulted in the formation of an informal neighborhood garden club. The efforts of the members of the club—children and their parents—gradually transformed the yards and homes on a run-down, discouraged looking street. Neatness and loving care will render small and almost shabby homes attractive.

One hundred and three wood cuts illustrate and also illuminate the context. The quotations below several are apt. Under one of the chrysanthemum is a Japanese proverb. Under one of the crocus Coventry Patmore sings—

"The buried bulb doth know
The signals of the year,
And hails far summer with his lifted spear."

In style this book is exceptionally clear and therefore pleasing. The excellence of paper, type, and illustrations makes this book a worthy expression of the wonders and beauties with which earth is crammed.

The Principles of Soil Management.

By T. L. Lyon and E. O. Fippin. 531 pages, illustrated. Price, $1.75, net. The Macmillan Co., New York, Chicago.

With this volume, L. H. Bradley, the general editor of a new series of Rural Text Books, offers Messrs. Lyon & Fippin "Principles of Soil Management" as the first of the new series. It is intended not only as a guide to the intelligent, and therefore money-making farmer, but more especially as a text book on this special subject in agricultural colleges. It is, to a layman, marvelous that the authors should have gathered together so much valuable and necessary information about the soil and its proper management. The work is rendered more valuable by many fine illustrations.

Hygiene for Young People.

By Dr. A. P. Knight, professor of physiology, Queens University, Canada. 204 pages. Price, fifty cents. Chas. E. Merrill Co., New York.

The data used in this volume is taken from the latest reports of various state and federal boards of health covering the United States and Canada. The author has laid special stress on hygiene and the text contains a large amount of useful information. It can be used as a text book on hygiene or as a supplementary reader. The type is large and the English simple.

The Oregon Trail.

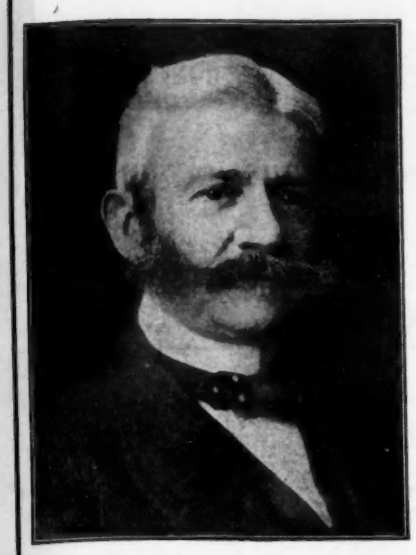
Sketches of Prairie and Rocky Mountain Life. By Francis Parkman. Edited by Charles H. J. Douglas. Cloth. 362 pages. Price, $0.25, net. The Macmillan Company, New York.

Nothing new can be said of Parkman's The Oregon Trail, except that the Macmillan's pocket classics edition in make and price are admirably suited to students. The story itself, as every one knows, is of perennial interest.

Treasure Island.

Edited by Franklin T. Baker, professor of English in Teachers' College, Columbia University. With portrait of Stevenson and map. Cloth. 307 pages. Price, 40c. Charles E. Merrill Company, New York.

The Charles E. Merrill Company of New York, can be congratulated upon publishing so cheap an edition of Robert Louis Stevenson's "Treasure Island." This series of books will include in complete editions those masterpieces of English literature that are best adapted for the use of schools and colleges. One of Stevenson's best works is offered in this little volume.



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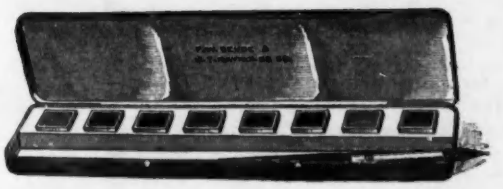

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FILLMORE HIGH SCHOOL.

The new high school at Fillmore, Cal., illustrated on page 20, has been erected on a beautiful tract of land comprising ten acres of ground.

The main structure covers a ground space of 154 feet front by 114 feet in depth. Wide steps and stairs lead to the building and to the five separate entrances.

The building has a concrete foundation and reinforced concrete walls finished with cement mortar-finish. The roof is covered with Spanish clay tile.

The basement height is 12 feet, with a 15 foot ceiling in the gymnasium. The main floor has 13 foot ceilings and an assembly hall 20 feet high in the clear.

On the main floor there are two recitation rooms and a teachers' rest room, an office for the principal fitted with a fireproof vault and air-tight closet for apparatus. There is also a commercial room and a typewriting room, a drawing room provided with racks for drawing boards, etc. The main feature of the first floor is the assembly hall, 44x58 feet in size, with a large stage and two dressing rooms. To the rear of the assembly room is a lecture room, 24x33 feet in size, so arranged that it may be opened up and serve for extra seating capacity to the large room. A physical laboratory and a chemical laboratory adjoin the lecture room.

The basement contains a manual training room, 39x46 feet in size, and a store room adjoining with tool rooms and closets. The domestic science department consists of a suite of rooms including a kitchen, a dining room and pantries. Two large recitation rooms, bicycle rooms, store rooms, a janitor's room and toilet rooms are also on this floor. The gymnasium is 44x40 feet in size.

The toilet rooms in the building have been arranged in the best sanitary manner and fitted with the best fixtures obtainable. The closet stalls will be built with walls of vitrolite structural glass. The heating of the building will be done by the fan blast system. An air-washer has been installed which is a joint invention of Mr. J. M. Horton, principal of the school, and Mr. A. C. Smith, the architect.

A feature of the building is an up-to-date vacuum cleaning system and an air compressor for supplying compressed air to the laboratories and for cooling the drinking water. A small elevator has been installed.

The building cost $33,000, and was designed by Mr. A. C. Smith, architect, Los Angeles, Cal.

COMING CONVENTIONS.

Apr. 7-8-9. Southeastern Iowa Teachers' Association in Ottumwa. Supt. Frank L. Smart, chairman of local committee.

April 8-9. Northern South Dakota Educational Association at Milbank. Supt. S. K. Clark, local committeeman, Milbank, S. D.

Apr. 23-27. International Kindergarten Union, at St. Louis, Mo. Miss Alice O'Grady, president, Chicago. Miss Mary C. McCulloch, local chairman, St. Louis, Mo.

Apr. 29-30. Conference of Superintendents of Southwest Missouri at Springfield.

May 3-5. County School Commissioners of Georgia, at Athens. T. H. Dozier, local commissioner.

May 10-13. Western Drawing and Manual Training Teachers' Association, at Minneapolis.

May 16-18. National Conference on the Education of Dependent, Backward, Truant and Delinquent Children, at St. Louis, Mo. Mr. Elmer L. Coffeen, secretary, Lyman School for Boys, Westboro, Mass.

June 7-8. Federated Boys' Clubs, at Rochester, N. Y.

June 7-11. Playground Association of America, at Rochester, N. Y. H. S. Brancher, secretary, 1 Madison avenue, New York city.

June 21-23. Kentucky Education Association, at Henderson, Ky. Supt. T. C. Cherry, president, Bowling Green; T. W. Vinson, secretary, Bowling Green; Supt. Alfred Livingstone, local chairman, Henderson.

June 28, July 1. Conference for Child Research and Welfare, at Worcester, Mass. Henry S. Curtis, secretary, Worcester.

June 29-July 1. Pennsylvania Education Association, at Erie.

July 2-8. National Education Association, at Boston, Mass. Dr. Irwin Shepard, secretary, Winona, Minn.

LATHES FOR SCHOOLS.

The Shepard Lathe Company has for many years given the subject of lathes for schools special attention. In fact, the company is in position to supply complete equipments of foot, power or motor driven lathes, planers, shapers, drills, milling attachments, taper attachments, turret attachments, gear cutting attachments and foot, hand or power saws. Any school which obtains one of their complete equipments is in position to do almost any of the various problems connected with this phase of manual training.

The indorsements which the company has received for the quality of its work are of the best. From the United States Military Academy at West Point, N. Y., down to the smallest one-room equipment, the greatest satisfaction has been manifested. All the lathes are positively guaranteed to be of the best material, thoroughly tried and tested. The Shepard Lathe Company will be pleased to send one of its latest catalogues to any school authority interested. Address 131 West Second street, Cincinnati, Ohio.

THE BRAIN WORKERS TONIC

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It rests and strengthens the tired brain, dispels nervous headache and induces restful sleep and a good appetite.

If your druggist can't supply you we will send small bottle, prepaid, on receipt of 25 cents. RUMFORD CHEMICAL WORKS, Providence, R. I.

Advertising Pays.

It was a surprise to the summer boarder to learn that one of the group of graduates from the seminary to the "farewell exercises" of which she had listened the year before, was married and settled in a home of her own.

"I remember her," said the summer boarder, when the name was mentioned, "but she did not strike me as being as attractive as most of the other girls."

"Um-m," said her informant. "Well, I guess 'twas her graduating essay that kerried her off so quick, maybe. Her subject was, 'How to Keep House on Six Dollars a Week,' and it fetched most every young fellow in town, they tell me. By what I hear, all she had to do was to sit at home and pick and choose."

Teacher—How many bones have you in your body, Jimmy?

Jimmy—Five hundred and nine.

Teacher—But the other pupils have not so many.

Jimmy—Well, they ain't had fish for dinner, like me.

Intime Geschichten.

Lehrer: „Wer kann mir ein Beispiel aus dem Leben zu dem Sprichwort: „Vom Erhabenen zum laecherlichen ist nur ein Schritt" erzaehlen?"

Fritz: „Wenn Vater einen von uns verkeilen will und er kriegt von Muttern Keile!"

THE MAN THAT MAKES TWO BLADES OF GRASS GROW WHERE ONE DID BEFORE GETS MUCH CREDIT.

HOW ABOUT THE MAN THAT MAKES ONE PENCIL DO THE WORK THAT THREE OR FOUR DID BEFORE, BY PROVIDING

DIXON'S No. 303 BEGINNERS' PENCILS

IN THE PRIMARY GRADES OF SCHOOL?

Write for Sample of this Pencil

Joseph Dixon Crucible Co., Jersey City, N. J.

A Vision Defined.

Teacher, in the Sunday school (who has been instructing the young idea on the subject of vision)—Now, children, can anyone tell me what a vision is? Ah, Tommy's hand is up! Well, Tommy?

Tommy (with a drawly voice)—It's a sort of dizzy spell.—Judge.

A Simple Answer.

A school teacher in one of the lower grades once asked her room, "What is wind?"

After a thoughtful pause, a small hand was raised. "Well, Robert, what is your answer?" she asked.

"Why—er, wind is the air when it gets in a hurry," answered Robert.—Delineator.

A Classical Education.

A young lady, whom a writer in the Washington Post thinks was just out of school, stood in front of the florist's stall and examined his stock critically.

"I want enough for two large window boxes," she announced, "and they're to be red and blue. That lot of lobelias will do nicely. How much are these?" She pointed to a row of flaming geraniums.

"Geraniums are fifteen cents apiece," said the florist. "Two for a quarter."

She looked at him almost pityingly, and then very delicately, as if wishing not to hurt his feelings by the correction, she said:

"I will take a dozen of your best gerania."

Tommy Won.

An English clergyman, writing about woman's dress, says that ladies of a certain class seem to vie with each other which shall approach nearest in their dress to the garments of a man. He points his comment with a satirical story of another absurd rivalry.

Two brothers went to the same school. They were absent about a fortnight, and then one returned alone.

"Where's your brother, Thomas?" asked the master.

"Please, sir, he's laid up with a sprained arm. We were trying to see which could lean out of the window farthest, and Tommy won."

Teacher (trying to make a little boy remember the word blessing)—What did your papa say before eating this morning?

Little Boy (suddenly recalling)—Oh, yes, he said, Now ain't that a bum breakfast for a white man to sit down to?

Teacher—Now, Robert, do you know what an isosceles triangle is?

Boy—Yes'm.

Teacher—Well, what is it?

Boy—It's one uv dem t'ings I gets licked fer not knowin' wot it is.

Knighthood Defined.

Teacher—Johnnie, define chivalry.

Johnny—Chivalry means knighthood.

Teacher—Use the word in a sentence.

Johnny—My grandma wears chivalry when she goes to bed.

Tangled in His Specifications.

"Tommy, you were not at school yesterday. Why was that?" asked teacher.

"I was sick, ma'am," answered Tommy.

"I am sorry to hear it. What was the trouble?"

"I had a awful sore thumb."

"That is too bad. What caused it?"

"I—I stepped on a rusty nail, ma'am."

Then the teacher knew that Tommy had played hookey.

Tommy was stubborn, and his teacher was having a hard time explaining a small point in the geography lesson.

"Tommy," teacher began, "you can learn this if you make up your mind. It's not one bit smart to appear dull. I know," she continued coaxingly, "that you are just as bright as any boy in the class. Remember, Tommy, where there's a will there's ——"

"Aw," broke in Tommy, "I know all dat, I do. Me fadder's a lawyer, he is, an' I've heard him say it lots o' times."

"You should not have interrupted me," reprimanded the teacher, "but I am glad that your father has taught you the old adage. Can you repeat it to me?"

"Sure," said Tommy confidently, "Me fadder says dat where der's a will—der's always a bunch o' poor relations."

Figuratively Speaking.

"What became of Nineveh?" asked the Sunday school teacher.

"It was destroyed," said Johnny, promptly.

"And what became of Tyre?"

"Punctured."

A Terrible Possibility.

Little Lucy came home from school crying piteously. It was some time before the family could learn the cause of her trouble, but finally the sobbing grew less violent, and she wailed out:

"Teacher says—if I don't get my spelling lesson—she's going to make an example of me, and—she puts examples on the blackboard, and—if she puts me there, I'm—afraid the scholars will rub me ou—t!"

THE LATEST TEXT-BOOK ON PSYCHOLOGY

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Mention this publication

CHRISTIANA SCHOOL.

The new public school recently completed at Christiana, near Lancaster, Pa., was designed by School Architect Clyde S. Adams of Philadelphia, Pa., and was built by Contractor Jos. L. Aiken, of Vintage, Pa.

The heating and ventilation of the building is secured from a central steam plant.

The outside dimensions are 82 ft. frontage and 33 ft. deep—with a wing at the rear.

There are six rooms with a seating capacity of 56 pupils to each room. The cloak rooms are placed adjacent to the classrooms and each classroom is provided with ample teachers' and book closets.

On the first floor are three classrooms—with a spacious vestibule and corridor, also a storeroom. The second floor is the same as the first with a directors' room at the front of the building over the main vestibule. The basement contains a large playroom, boys' and girls' toilet, floors of which are cemented.

The facade of building is of red brick. The quoins on corners of building are built of white brick as is also the window trims. Hummelstown brownstone is also used in the trimmings.

The contract price on the building is $10,000.

SCHOOL ENGINEERS MEET.

The Association of Board of Education Designing Engineers held a successful convention in St. Louis, March 15 and 16. The two days were spent in informal discussion of problems of school architecture, ventilation and sanitation. Papers on the electric lighting of schoolrooms, by Benjamin A. Hatch of Boston, and on The Sanitary Drinking Fountain, by Wm. P. O'Toole, were read.

Officers for the ensuing year were elected: William P. O'Toole of Boston, president; Rodney Smith of St. Louis, vice president, and Daniel A. Casey of Boston, secretary and treasurer. Boston was selected as the place of next meeting.

The members of the association, besides the officers, are: J. H. Brady, Kansas City; G. W. Knight, Newark, N. J.; C. F. Everleth, Boston; J. Foster Warner, Rochester, N. Y.; John D. Cassell, Philadelphia; Thomas D. Perry, Grand Rapids, Mich.; Peter A. Peterson, Cleveland; F. G. McCann, S. A. Thomas, J. H. Lindsey and W. H. Dewar, New York; John N. Barbee, Chicago, and Rodney Smith of St. Louis.

DUSTLESS SCHOOLS.

Since our issue of November, 1908, at which time we devoted a page to the subject of vacuum cleaning as a means of suppressing and withdrawing the dust contents from school buildings, we have watched with deep interest the progress that is being made in schoolroom cleaning.

The American Air Cleaning Company, whose main office and factory are located in Milwaukee, has, within the past few months, installed nearly forty vacuum cleaning systems in as many different schools, located in all parts of the country, from the Atlantic to the Pacific.

The first public school in the United States to be equipped with a vacuum cleaning system, designed especially for schoolroom cleaning, was, we believe, the Sixteenth District school, No. 1, in this city. The work of this system was so thorough that neither brush, broom nor duster was used in that school during the entire school year, from the time of its installation, and it was found necessary to scrub the floors only twice during the year.

It was noted that during the first four months of the first year of its introduction health conditions were improved by about 20 per cent. While it is not claimed that the entire improvement was due to the vacuum cleaning system, yet, when one stops to consider the poisonous nature of dust and the fact that there was practically no dust in the building, one is inclined to give the vacuum cleaning system credit for the larger part of the improved conditions.

We believe that the vacuum cleaning apparatus, as it has been developed by the above named company in its well known Aero Systems, is now entirely practical, and we look to see these systems installed in a majority of the schools in this country within a very few years.

We are informed that scarcely a week passes without a number of committees visiting the Aero factory in this city, and, as a result, Aero Vacuum Cleaning Systems are now on the road to or are being built for schools in various states.

SLATE BLACKBOARDS.

A new twist to the ancient saying, "By the fruit shall you know the tree," has been given by the manager of the Pennsylvania Structural Slate Co., Easton, Pa., manufacturers of sanitary slate and natural slate blackboards.

In a recent interview, while speaking about natural slate blackboards vs. composition or artificial blackboards, he stated about the latter:

"It's a case of 'By the tree shall you suspect the fruit.' Artificial blackboards, being made of pulp, prepared in and drained from a solution of paste water, furnish their own testimonial as to their limited efficiency and durability; for, naturally, the repeated wet-washing is bound to gradually decompose this composition so that as 'Dust returneth to dust,' this pulp will return to pulp.

"Nor is it possible to spare these boards from the wet sponge bath, for dry-wiping would soon change such a blackboard in a 'gray' board—where chalk marks are invisible at a distance."

These predicaments are avoided by the use of Pennsylvania Structural Slate Company's slate blackboards, made from the same imperishable material as roofing slate.

This material is one of the very few substances that have no pores, and are, therefore, non-absorbent and not subject to decay or decomposition. The surface of these blackboards is so highly polished as to assume and retain a glass-like smoothness over which the crayon glides with ease. As there are no pores through which the water (from the wet sponge) can enter, there is no wear out to these blackboards.

The Pennsylvania Structural Slate Company publishes an interesting and practical little book showing how to specify natural slate blackboards, how to judge them, how to install them and what they mean to the architect, the school superintendent, the school board, the health authorities, the taxpayers, the teachers and the pupils.

This interesting little brochure is free for the asking. All interested in school construction or school management will do well to have this little booklet handy.

New Art Catalog sent on receipt of Fifty Cents, which amount will be deducted from first order amounting to Five Dollars or more.

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¶We must succeed in selling the entire thousand to pay out, and if we do we will attempt a series of ten "Wonderful Pictures in a Remarkable Size for the Price," and shall deem it a favor if superintendents and teachers will submit a list of ten classic pictures from which to select the subjects.

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CONTEST CLOSES MAY 31st, 1910

Five Hundred PRIZES will be given away absolutely free. They are worth trying for.

The contest will be divided into classes, taking in all pupils in the primary and grammar grades and the high school.

Have every one of your pupils send in a drawing. Rural schools as well as city schools have an equal chance to win the valuable prizes. The awards offered will be an incentive and inspiration to your pupils.

Enter the contest in earnest at once. It will develop hidden talent in some of your boys and girls and stimulate interest in their work. Box containing 3 sample sticks (about ⅓ actual length) in the three primary colors, sent free, upon request.

Regular 10 ct. box of Crayograph sent postpaid for five 2 ct. stamps or a handsome booklet included telling how to get the best results with Crayograph for ten 2 ct. stamps. Write for 8-page folder telling all about the big prize contest.

Address: Educational Dept., THE AMERICAN CRAYON COMPANY, Sandusky, Ohio

THE MYEM DRINKING FOUNTAIN.

The accidental meeting of the streams of two garden hoses suggested the idea of this fountain. Old in principle, yet new in execution, the Myem drinking fountain promises to become one of the best in the market. The interest manifested by visitors to the meeting of the department of superintendence argues very well indeed for the fountain. It is something new which certainly will attract the attention of the American school building public.

The principle upon which this new drinking fountain is based is this: Four or eight streams of water are brought to a point at which the water naturally rises in a fountain. With good or bad pressure the water rises sufficiently high above the fountain to prevent waste, and also to assure only the fountain use of the water. The moment the drinker attempts to use the water from any other part of the fountain the water gets into his eyes and nose and thus naturally his mouth comes back to the fountain. The gentle flow of the jet and the natural rise of the water are features of the fountain.

The Myem Sanitary Drinking Fountain is made with two models. One has four streams, the other eight. The principle in both fountains is exactly the same, but the two models were designed to meet the high and low water pressure which is found in different cities. The fixture is solid brass, heavily nickled, and may be directly connected with a supply water pipe. A one inch pipe will supply six fountains. The fountain itself is of brass with peculiar curved piping to prevent all school boy pranks or malicious tinkering.

Physicians in examining the fountain have expressed an appreciation of the principle as also the execution. The idea of making the fountain absolutely sanitary, mechanically perfect, simple in construction and indestructible, has attracted attention and has given the maker very wide commendation. Also the fact that a special proposition for schools is to be made has attracted the attention of school people.

Myem Drinking Fountain, manufactured by the American Sanitary Fountain Co., Indianapolis, Ind.

FREE ATLAS FOR SCHOOLS.

The Columbus Heating & Ventilating Company has just issued an excellent Atlas of the World, which is being sent free to superintendents of schools and members of boards of education throughout the country. It is a cloth covered book, beautifully bound, printed in good colors, with high-grade maps and good paper. It is one of these little nuggets which at rare times finds a foremost place in the intricacies of modern commercial life.

Among others, it contains a map of the world, a map showing the state organizations, the commercial languages and the timber supply. It also contains very accurate maps of all the countries of the world, a map of each state of the Union, a map of the canal zone, as also the routes of Peary and Cook to the North Pole, and Col. Shackleton to the South Pole. The volume ends with possibly the best map ever published on the Panama Canal.

On account of its accuracy, this will undoubtedly become a valuable atlas. When the price of the large commercial atlas is considered, as also their size and general bulkiness, the value of this desk or pocket atlas will become apparent. Every superintendent of schools and every school board is at times interested in commercial or geographic problems. The Columbus Heating & Ventilating Company Atlas answers every question with rapidity and accuracy. Copies can be obtained free by writing to Columbus Heating & Ventilating Co., 425-438 West Town street, Columbus, Ohio.

A MANUAL TRAINING SCHOOL.

(*Concluded from Page 27*)

The rear room on the first floor will have joists and girder construction. The balance of rooms will have clear span construction, with no joists or obstructions.

The best workmanship and materials have been specified for the building and contracts have been let for $8,400. This includes plumbing and steam heating, but no equipment. The architect is Mr. Wm. F. Miller, Springfield, Ohio.

Prof. John W. Wilkinson, assistant state superintendent for Oklahoma, who recently established the Southwest School Men's Journal, announces its consolidation with the Oklahoma School Herald, of Oklahoma City.

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If you want a home in one of the finest fruit districts of the country, where conditions are ideal, or if it is necessary that you secure a home in sunny Colorado for the health of some member of your family, then you should know about Morrisania Ranch, Grand Valley, Colo.

Some friends of The Fruit-Grower and myself have bought this entire ranch of more than 800 acres. We hold part of this ranch for ourselves, and will develop it to the limit, and offer half of it for sale. This land has been cut up into tracts of approximately ten acres each, and the price is $300 per acre, including perpetual water right.

Fruit-growing is work requiring brains, and rewards are very great. Orchards near Morrisania produce over $1,000 worth of fruit per acre, and bearing orchards sell for from $2,000 to $4,000 per acre. We have orchards in bearing at Morrisania, showing that it is ideal for fruits and for a home—climate is ideal, with almost 300 days of sunshine a year; water is melted snows from mountains back of the land; scenery is beautiful. An ideal community of good people is being built up. Ten acres of this land will provide a handsome income, and is enough for a family. We will plant your orchard and care for it for five years, and you can continue your present work until trees will produce an income. Write for beautiful booklet describing this ranch and explaining our proposition to build up an ideal community. JAMES M. IRVINE,
Editor The Fruit-Grower, Box E-3, St. Joseph, Mo.

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LEBANON HIGH SCHOOL.

An imposing and solid appearing structure of pressed brick with simple stone trimmings; dignified and imposing without undue ornamentation is the best description which can be applied to the new high school which has been in use in the city of Lebanon, Ind., during the past year.

The building is two stories high with a basement. A large gymnasium, two manual training rooms, separate dining rooms for boys and girls, shower baths, janitors' quarters and a heating plant are located in the basement.

The first floor includes four recitation rooms, a commodious assembly hall, a laboratory, teachers' rest room and an office for the superintendent and principal. The assembly hall is equipped with desks and serves as a common study room. It will accommodate, with the balcony, about 750 persons. The stage is large enough to serve for all school entertainments, lectures and graduation exercises.

On the top floor are found four further recitation rooms, a lecture room, chemical laboratory, physics and botany laboratory and preparation rooms.

The hallways are wide and have been equipped with individual steel wardrobes and hat racks. Drinking fountains, lavatories and toilet rooms for boys and girls have been placed on each floor. The plumbing is of the most approved pattern for schoolhouse use.

The classrooms are finished in hard plaster with yellow pine trim and natural slate blackboards. The laboratories are equipped with specially designed furniture and modern plumbing.

The heating plant is a steam system, equipped with a fan for ventilation.

The building cost, including heating, architects' fees and superintendence, $51,854. Of this, $8,500 was spent for the heating and ventilating plant. The architects are Herbert L. Bass & Co., Indianapolis, Ind.

FRANKLIN SCHOOL, ENGLEWOOD, N. J.

The new Franklin school at Englewood, N. J., which has been in use during the past year and a half, is a splendid type of the best school buildings in the eastern states. It serves a small community as a graded school, including kindergarten, primary and elementary classes and as high school as well.

The exterior is a pleasing adaptation of the colonial, sacrificing in no way the problem of lighting classrooms. The walls in the building are of brick, and cement stone is employed for window sills, terrace railing and the remaining exterior trim. The cornices are wood. The floors are of mill construction, sound-proofed and protected so as to be slow burning.

The kindergarten and the grade rooms occupy the first floor. The high school study hall, recitation rooms and laboratories occupy the second floor and a portion of the third floor. The high school department is intended to accommodate a maximum of 216 students and the grade rooms will comfortably hold 370 children. The classrooms are seated so that four will accommodate forty children each and four forty-two each.

All walls in the interior are finished in hard plaster. The classrooms have chestnut trim, hard maple floors and natural slate blackboards. The laboratories are fitted with cases of chestnut and tables of the same material with slate tops.

The heating system is an indirect system with plenum fans and mixing dampers. A small amount of direct radiation has been provided for extremely cold weather. Heated vent flues are placed in each room with openings at the floor. The heating plant, including ventilation, cost $9,300.

The sanitary conveniences include enameled iron range closets and enameled iron basins placed in the basement. Private toilets are connected with the board of education room, the teachers' room and the kindergarten. Sanitary drinking fountains are located in various parts of the building.

The entire structure, complete, cost $88,500, or about 17½ cents per cubic foot. Taylor & Mosley, New York City, are the architects.

MADISON SCHOOL.

The new public school under construction at Madison, N. J. (see illustration on page 13), was designed by Mr. H. King Conklin of Newark and Madison, N. J. It occupies a site of 106,000 square feet and measures 101x72 feet.

The exterior is of brick and concrete has been employed liberally in the construction. The building is practically fireproof and contains eight classrooms, a kindergarten, a teachers' room, an office for the principal and a large assembly hall.

The basement has been divided equally between the sexes. In the boys' division there are, in addition to a playroom, a manual training room, a bicycle room, space for the janitor and a toilet room. On the opposite side there is a playroom for the girls, domestic science room and toilet.

The first floor contains four standard classrooms and a kindergarten. The corridor, which runs from one end of the building to the other, is fireproof.

The assembly hall on the second floor is capable of seating 400 persons.

The cost of the building complete is $43,000, exclusive of architects' fees. The property cost about $12,000, making the entire cost, approximately, $60,000.

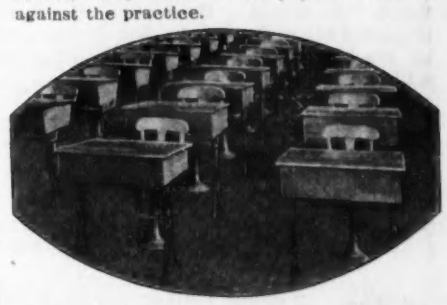
PREVENTION OF DISEASE CONTAGION AMONG SCHOOL CHILDREN

How it Can Be Accomplished

THE prevention of disease contagion among school children has long been a subject of serious study and exhaustive experimentation.

Medical Science has demonstrated that disease contagion is easily transmitted by *dust*, and that circulating dust, moreover, is the greatest carrier and distributer of disease germs known. The true remedy then—the true preventive of disease transmission—lies in the extermination of dust and its millions of living bacilli.

Dusty floors simply teem with these microorganisms. Sweeping will not dispose of them. The action of the broom merely swishes the dust and germs into the air and affords an opportunity for them to circulate with every current of air. We must, then, regard dry-sweeping as particularly dangerous, and there should be a crusade in every school, every store, in every public building against the practice.



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Alabama.

Guntersville—School will be erected; $25,000. Birmingham—Archts. Warren & Welton have plans for Mercy Home Industrial School; $25,000. Anniston—Archt. Chas. W. Carlton has plans for Leighton Ave. School.

Arkansas.

Russellville—2-story school will be erected; $12,000. Ft. Smith—Bids were received for manual training and science school. Addition will be built for high school; $75,000.

California.

Longbeach—Propose issuance of bonds for high school and polytechnic school. Redlands—$85,000, bonds, were voted for two polytechnic schools. San Leandro—Contract has been let for 16-room grammar school. Fresno—High school will be erected; $60.000. Claremont—High school will be erected; $75,000. Lincoln—$20,000, bonds, were voted for school. Beaumont—Plans are being prepared for high school. San Bruno—School will be erected, Huntington Park. Alameda—School will be erected.

Colorado.

Trinidad—Archts. I. H. & W. M. Rapp have plans for high school. Englewood—Contract was let for school; $30,000. Greeley—Training school will be erected for Colored State Normal school.

Florida.

Pensacola—5-room school will be erected.

Georgia.

Atlanta—12-room Walker school, 8-room First ward school, Third ward school, Fourth ward school, Sixth ward, Eighth ward, Copenhill school and colored school for Fourth ward will be erected.

Illinois.

Chicago—Archt. A. F. Hussander has plans for 3-story Irving Park school. Aledo—School will be erected. Chicago—Chicago Hebrew Institute will rebuild school. Peoria—School will be erected on Moss Ave. Naperville—Site is being considered for high school. Chicago—Archt. Albert F. Pashley has plans for school; $100,000. Archts. L. Novy & Son have plans for school and hall; $10,000. Wilmette—$35,000, bonds, were voted for school. Chicago—Archts. Worthman & Steinbach have plans for 3-story school. Rockford—Plans are being prepared for 12-room school. Evanston—Propose erection of school. Chicago—5-story parochial school will be erected, Austin Park; $100,000.

Indiana.

Crown Point—Archt. Chas. E. Kendrick, Gary, has plans for 5-room school; $6,000. Lewis—4-room township school will be erected. Prairie Creek—8-room township school will be erected. Greensburg—2-story township school will be erected. Bluffton—Archt. Chas. Houck has plans for 2-story school. Ellettsville—School will be erected; $20,000. Jasonville—High school will be erected; $15,000. Galveston—2-story school will be erected. Rome City—Archts. Griffith & Fair, Ft. Wayne, are preparing plans for school; $35,000. Seymour—Archts. Foltz & Parker, Indianapolis, have plans for high school; $60,000. Covington—Bids will be received for school. Peru—High school will be erected; $100,000. Vincennes—Archts. Campbell & Osterhage have prepared plans for 2-story addition to high school; $20,000. Terre Haute—Plans are being prepared for Davis Park school and manual training school. Evansville—Propose erection of high school; $100,000. Griffith—Plans were approved for 8-room school; $25,000. Deerfield—4-room school will be erected.

Iowa.

Templeton — School will be erected. Council Bluffs—Parochial school will be erected; $20,000. Boone — Plans have been adopted for school. Lansing—School will be erected. Rutland—School will be erected, Lake township. Centerville — High school will be erected. Elk Horn—Archt. Fred Peterson, Omaha, Neb., has plans for Danish Lutheran College; $13,000. Carroll — School will be erected. Colfax—Propose erection of high school. Bennett—School will be erected. Storm Lake — Propose issuance of bonds for erection of high school. Indianola—Archt. A. H. Gilliland has plans for school, Palmyro township. Stockport—High school will be erected. Mason City—School will be erected. Malcom—School will be erected.

Kansas.

Humboldt—High school will be erected; $20,000. Wichita—Archt. Wm. B. Ittner, St. Louis, Mo., has plans for school; $250,000. Plainville—2-story parochial school will be erected. Englewood—Plans are being prepared for school. Sylvan Grove—School will be erected; $12,000. Osborne—2-story school will be erected. Independence—Archt. F. N. Bender has plans for business college; $25,000. Neodosho—Archt. E. J. Nichols, Bartlesville, Okla., has plans for high school; $50,000. McPherson—Propose issuance of bonds for school.

Kentucky.

Eminence—Archt. V. P. Collins, Louisville, has plans for school; $15,000. Louisville—Colored school will be erected. Burlington—Site was purchased for county high school.

Louisiana.

Jonesboro—Archts. Smith & Bathel, Monroe, have plans for 10-room school. Castor—Contract was let for 2-story school.

Maine.

Waterville—Propose erection of high school.

Maryland.

Baltimore—Archts. Baldwin & Pennington have plans for school No. 51; $107,000.

Massachusetts.

Chicopee—Archts. Geo. P. B. Alderman & Co., Holyoke, have plans for 2-story school; $30,000. Lawrence—Archt. John Ashton has plans for 16-room grammar school; $90,000. Archt. Wm. P. Regan has plans for 18-room parochial school. Archt. James Flannigan has plans for 15-room school. Clinton—Archt. F. T. Lent, Leominster, has plans for 2-story school; $20,000. Watertown—High school will be erected; $140,000. Boston—Plans have been prepared for five schools. Mansfield—Propose erection of high school. Lawrence—8-room and 6-room school will be erected.

Michigan.

Traverse City—Archt. T. E. Moore has plans for 2-story school; $16,000. Monroe—High school will be erected. Ortonville—Plans are being prepared for school. Fremont—Plans have been prepared for school. Dist. No. 6. North Branch—Primary school will be erected.

Minnesota.

Caledonia — Parochial school will be erected; $20,000. St. Peter—School will be erected, Belgrade township. Floodwood—School will be erected; $15,000. Chisholm—Propose erection of 20-room school; $120,000. Litchfield—8-room school will be erected; $20,000. Triumph — $8,000, bonds, were voted for school. Alberta—Archts. Chandler & Park, Racine, Wis., have plans for school; $125,000.

Mississippi.

Shannon—School will be erected.

Missouri.

Caruthersville — High school will be erected. Platte City—Bids have been advertised for high school. Webb City—High school will be erected; $90,000. Festus—4-room school will be erected.

Montana.

Butte—Plans have been prepared for Franklin school. Virginia City—Propose issuance of bonds for erection of addition.

Nebraska.

Lexington—Plans are being discussed for high school. Ravenna—High school will be erected. Bloomfield—Archt. Wm. L. Steele, Sioux City, Ia., has plans for parochial school; $11,000. Omaha—Site was purchased for manual training school. Fullerton—Propose erection of school. Bristow—School will be erected; $12,000. Stanton—Propose issuance of bonds for high school.

New Jersey.

Millburn—Archt. R. C. Hutchinson, New York, has plans for 2-story school. East Orange—Archts. Walker & Hazzard, New York, have plans for private school; $10,000. Linden—Archt. Louis Quien, Jr., Elizabeth, has plans for school; $80,000.

New Mexico.

Logan—Site was selected for school.

New York.

Hawthorne—Plans have been prepared for school. Irvington—Archts. Ewing & Chappell, New York, have plans for school; $100,000. Lawrence—Archt. Wm. Adams, New York, has plans for school; $80,000. New York—Archt. Jos. H. McGuire has plans for school; $45,000. Albany—High school will be erected. New York—$900,000 has been appropriated for Washington Irving school. Archt. C. B. J. Snyder has plans for 5-story school. Schenectady—Plans have been prepared for High school. Buffalo—Propose erection of State Normal school. Albion—Propose erection of school.

North Carolina.

Marshville—Contract was let for school; $10,000.

North Dakota.

Orr—2-room school will be erected. Bordulac—Plans are being prepared for school.

Ohio.

Monroeville—Archt. Vernon Redding, Mansfield, has plans for school; $20,000. Findlay—Archts.

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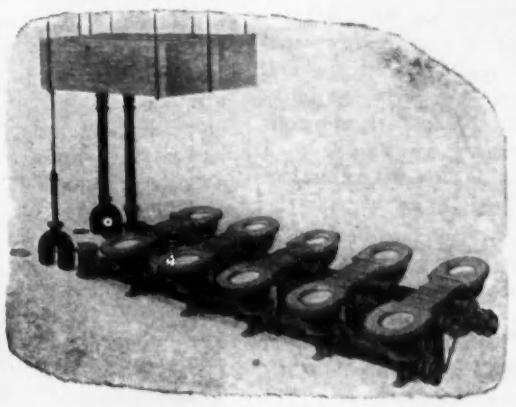

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Howard & Merriam, Columbus, have plans for school; $25,000. Mason—Archts. C. C. & E. A. Weber, Cincinnati, have plans for school; $25,000. Trenton—Plans have been prepared for school. Grove City—High school will be erected. Mt. Healthy—School will be erected; $50,000. Barberton—School will be erected; $10,000. Belmore—Archts. S. P. Stewart & Sons, Bowling Green, have plans for 1-story school. Campbellstown—Archt. C. W. Taylor, Newcastle, has plans for 8-room school. Wilmington—Propose erection of high school. Bucyrus—2-story school will be erected; $18,000. Cincinnati—Contract was let for colored school, Walnut Hills. Alliance—Plans have been prepared for high school and ward school. Middletown—Three schools will be erected.

Oklahoma.

Woodward—Archt. R. G. Kirsch, St. Louis, has plans for school; $65,000. Pauls Valley—Archts. Barry & Smith, Paris, Tex., are preparing plans for 3-story school. Vinita—Archt. J. W. Roberts, Claremore, has plans for 3-story high school. Crowder—School will be erected; $15,000. Cleveland—Archt. L. H. Babcock, Bartlesville, has plans for high school; $20,000. Kingfisher—$15,000, bonds, were voted for school. Alva—School will be erected.

Oregon.

Salem—Plans are being discussed for erection of school. Astoria—Bids were opened for high school. Klamath Falls—Contract was let for grammar school. Lakeview—Propose erection of school. Wallowa—Propose erection of school.

Pennsylvania.

Oreland—Archts. Schermerhorn & Phillips, Philadelphia, have plans for 2-story school; $6,000. Phoenixville—High school will be erected; $11,000. Middletown—Archt. C. Howard Lloyd, Harrisburg, has plans for 12-room school; $50,000. Wysox—Archt. S. O. Lacey, Binghamton, N. Y., has plans for 4-room school. Old Forge—2-story school will be erected. Catasauqua—Plans are being prepared for high school; $25,000. Pittsburg—Archts. Rutan & Russell have plans for high school; $1,200,000. Titusville—Archt. Joseph Brenot, Oil City, has plans for 8-room school; $25,000. Philadelphia—Contract was let for parochial school; $20,000. Bridgeton—Plans will be prepared for high school; $60,000.

South Carolina.

Elko—School will be erected.

Tennessee.

Henning—School will be erected; $15,000. Germantown—School will be erected.

Texas.

Colorado—School will be rebuilt. Beaumont—Proposals have been received for Millard school and North End ward school. Commerce—2-story school will be erected. Alvin—Archt. R. L. Pierce, San Antonio, has plans for 2-story school; $20,000. Groesbeck—School will be erected; $25,000. Seminole—2-story school will be erected. Falfurrias—High school will be erected; $25,000. Milano—School will be erected. Lueders—2-story school will be erected; $10,000. Killeen—School will be erected. Milford—$20,000, bonds, were voted for school. Abbott—$12,000, bonds, were voted for school. Carlton—2-story school will be erected. McDade—2-story school will be erected. West—Bonds will be issued for erection of school. San Antonio—Site has been purchased for military school.

Utah.

Provo—Archt. T. T. Davies has plans for 2-story school; $25,000.

Virginia.

Chester—Agricultural school will be erected; $15,000. Disputanta—Plans have been prepared for school; $8,000.

Washington.

Ritzville—High school will be erected; $27,000. Seattle—2-story school will be erected; $55,000. Hanford—2-story school will be erected; $10,000. Chehalis—Archts. C. Lewis Watson & Co., Seattle, have plans for 8-room school; $25,000. Anacortes—Plans are being prepared for high school. Monroe—$60,000, bonds, were voted for high school.

West Virginia.

Hollidays Cove—School will be erected.

Wisconsin.

Lomira—Archt. J. E. Hennen, Fond du Lac, has plans for school; $14,000. Richland Center—Archts. Parkinson & Dockendorf, La Crosse, have plans for high school; $60,000. Nelson—School will be erected, Dist. No. 4. Kenosha—4-room school will be erected. Wausau—2-story school will be erected. Tomah—Parochial school will be erected. Milton—Propose erection of high school; $15,000. Racine—Propose erection of school. Marinette—Propose erection of school. Columbus—Propose erection of county training school. Mellen—High school will be erected; $50,000.

Wyoming.

Rawlins—Plans have been prepared for school.

Mr. Ittner Retained.

Mr. Wm. B. Ittner, who recently resigned as official architect for the St. Louis board of education, has been engaged by the school authorities on a commission basis. He will prepare plans for new schools and will, in a general way, superintend the construction of buildings planned by himself and now under way.

Mr. Ittner is not the designer of the proposed high school at Topeka, as stated in our March issue.

The Pittsburg school authorities have finally selected architects to design the proposed Central high school, concerning which there has been a controversy for more than three years. Rutan & Russell, Pittsburg, are the favored firm.

President C. J. Schmidt of the Dayton, O., school board, has recently stated that it costs approximately $710 to send a child through the schools from the kindergarten to graduation in the high school. Of this the high school consumes $350, or nearly one-half.

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In October, 1908, the Government selected one of our standard Benches for the equipment of fourteen Government Schools in Alaska. We feel that we could hardly offer greater evidence of the exceptional merit and completeness embodied in our benches.

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The following are among the cities which, for the past five years, have found our Vises and Benches entirely satisfactory to the exclusion of all others: Seattle, Denver, Kansas City, St. Paul, Minneapolis, Omaha, Louisville and Nashville.

Over 100 schools are now using this lathe.

MANUAL TRAINING EQUIPMENTS

We give you an opportunity to see how they look and work under your conditions. You cannot afford to buy these important items by guess or hearsay.

E. H. SHELDON & CO., 80 N. May St., Chicago

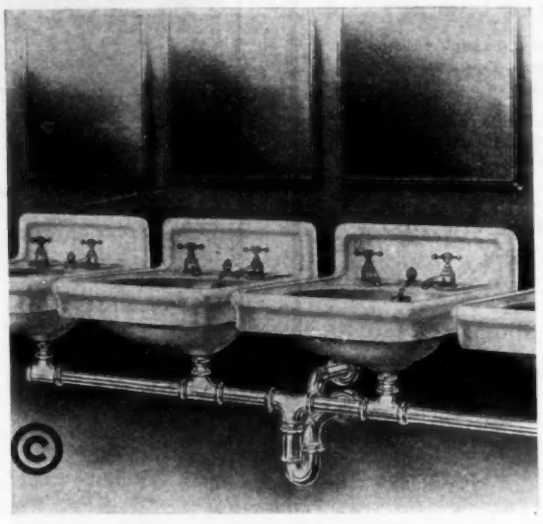
Write for illustrated Catalogue

SANITARY EQUIPMENT OF SCHOOLS.

(*Concluded from page 17*)

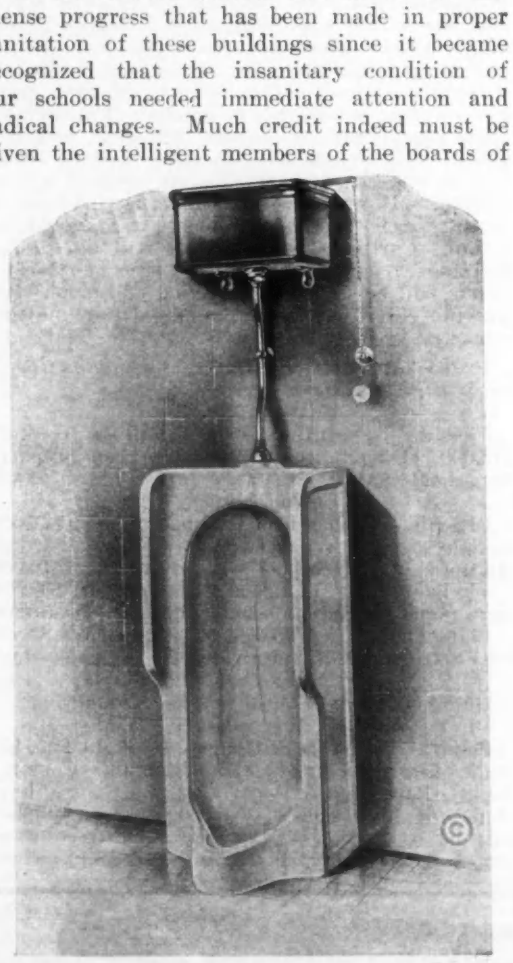
The hot water supply may be provided for by the use of a tank and hot water heater of suitable capacity, or a tank and steam coil if a high pressure steam system is available. In the latter event, the use of an instantaneous automatic hot water heater is preferable to a tank with steam coil, being more economical in the consumption of steam and having the advantage in that the temperature of the hot water can be controlled and prevent overheating of the water and subsequent scalding.

Fire standpipes of two or two and one-half inches diameter running from basement to top floor, with one and one-half inch outlets on each floor, must be provided for; each outlet to have approved pattern hose reels with fifty or a hundred feet of unlined linen hose and hose valves.



Roll-Rim Wash-basins for Schools.

This briefly summarizes the sanitary equipment for modern schools and shows the immense progress that has been made in proper sanitation of these buildings since it became recognized that the insanitary condition of our schools needed immediate attention and radical changes. Much credit indeed must be given the intelligent members of the boards of education throughout the country for recognizing the necessity of these changes, and who have aided so much in the improvement of these conditions. The responsibility of the members of the boards of education is a great one, and the duty they owe to the commonwealth and the community in general in properly safeguarding the life and health of our rising generation, is one that must ever actuate and influence their action in the administration of their office.



New Type of Urinal made of China-ware.

Acknowledgment—For the use of the illustrations in this article, the publisher is indebted to James B. Clow & Sons, Chicago.

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Permanent Homes, Summer Residences
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School House

We make a specialty of Portable School Buildings. Now in use in nearly all sections of the United States. Our Patent Construction insures a building that is absolutely dry, warm, well ventilated and healthy. Correspondence solicited. Write for catalogue, plans and prices to

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When a business man wants a stenographer for a position of responsibility, he gets in touch with The Smith Premier Employment Department. Because he knows that graduates from business schools where The Smith Premier is used are thinkers—brain workers.

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SYRACUSE, N. Y.

There is a reason for it, when 7,500
No. 2 Victor Typewriters

are ordered by one concern, after a careful investigation of all the various machines in the market.

The International Correspondence Schools of Scranton, Pa., didn't make this selection hurriedly—they were months doing it—tests of all machines were made.

The Victor won the order by its superior construction; its durability under heavy work; its adaptability to all classes of work; its improved devices and its ease of operation.

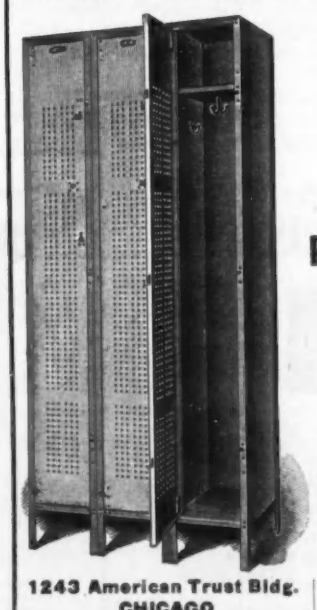
The combination of all these excelling, practical features is what did it.

Catalogue and booklet free.

Some good territory still open.

Victor Typewriter Company
812-814 Greenwich St., New York

Durand-Steel Lockers and Wardrobes



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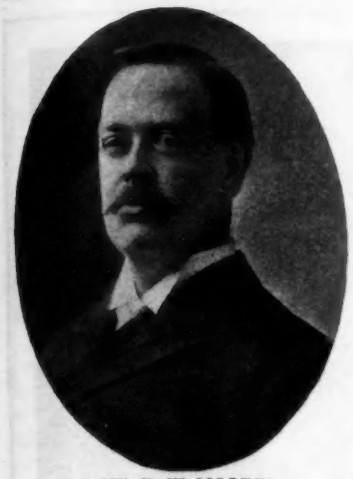


MR. R. W. MOORE,
President.

MR. J. C. MOORE,
Secretary and Manager.

MR. W. A. MOORE,
Vice-President and Superintendent.

Management of the Columbia School Supply Company.

A GROWING INDUSTRY.

Just ten years ago the editor of the American School Board Journal visited the plant of the Columbia School Supply Co., Indianapolis, Ind. The Moore brothers had recently purchased the entire building and stock of the original Crowell Cabinet Company. It will be recalled that this company had originally been organized in 1895 for the manufacture of scientific apparatus and school supplies. Its principal product was the Crowell laboratory cabinets for physics, which now are used in more than 50,000 high schools, seminaries, academies and colleges throughout the United States and foreign countries.

At the time of this visit the company was just being reorganized, with R. W. Moore, president; W. A. Moore, vice-president and superintendent, and J. C. Moore, secretary and treasurer. Although the plant was small, the employes few and the output limited, the prospects for a big business were excellent. The entire country was a field to be cultivated. The schoolroom was a specialty whose requirements were appreciated. The goods already made were meritorious and it only required well directed effort to unquestionably meet with deserved encouragement. The Moore brothers realized this and with characteristic energy and enthusiasm, the work had been begun which spelled success in every letter.

During the recent meeting of the Department of Superintendence of the National Education Association, the writer again visited the plant of the Columbia School Supply Company. Surprises were in store on every hand. Not only had the plant increased many times over, but on every side improved machinery and improved methods assured the scientific production of excellent school material. In like manner, the Crowell cabinet had been supplemented by a great variety of other scientific instruments. Steel furniture of all kinds, from the Sanitary Steel Adjustable Desk to a complete line of manual training benches, teachers' desks, superintendents' desks, drawing tables, etc., was being made with rapidity, grace and beauty. A series of buildings, each complete in itself and added to the original structure, proved the growth in every department.

Much of the success of the company, it must be remembered, is due to the successful operation of "The Columbia Plan" which the company placed in operation a few years ago. This plan has as its motto, "From the factory to the schoolroom," and assures in all cases a saving of the cost of salesmen, commissionman and the profits to dealers. The elimination of these items of expense insures lower prices on goods or better goods for the same money.

To make the plan feasible and absolutely perfect in operation, there is no charge made for packing. This item has always been considered difficult and is eliminated in favor of the purchaser. Then every shipment is guaranteed safe delivery. There is no trouble with railroads. Unsatisfactory goods may be returned after five days. Every sale is backed by years of experience and is given that individual attention which alone assures continued repeat orders.

Much of the business for this company is secured by a catalogue which may be very properly called an encyclopedia of school supplies and equipment. It is well printed, amply illustrated, and explains in detail the various methods of manufacture, and includes descriptions of goods, sizes and prices. Everything is quoted at net cost to convenience school officials and avoid the necessity of figuring discounts. One glance through it assures a well selected line, as also a variety which assures range in selection.

But the Columbia School Supply Company has done more than merely manufacture a line of goods. As an aid to teachers and pupils, it has produced a number of free publications intended to disseminate information on scientific and practical subjects. Prominent among these are: Fifty-Four Experiments in Physics, as adopted by New York and other state authorities; Fifty-Two Experiments in Chemistry; How to Use and Care for the Microscope; How to Use and Care for the Static Machine; Directions for Wireless Telegraphy; Directions for Manual Training in Woodwork; How to Set Black Boards.

If, during the past ten years, the Columbia School Supply Company has met with success—and it certainly has—that success has been well merited. The three Moore brothers have given the business the impetus of their personality. They have been enterprising, industrious and painstaking, never selling a shoddy article and only placing new articles on the market after the test of time and experience assured their place in the educational world. Each of the Moores is cheerful and still young. Each is a "live wire" and possesses all those elements which foretell an undoubted success. The American School Board Journal wishes them much success and all the good luck which they have merited.

For a Copy of this Catalog write to

BOSTON SCULPTURE CO.,

819 Main Street,

MELROSE, MASS.

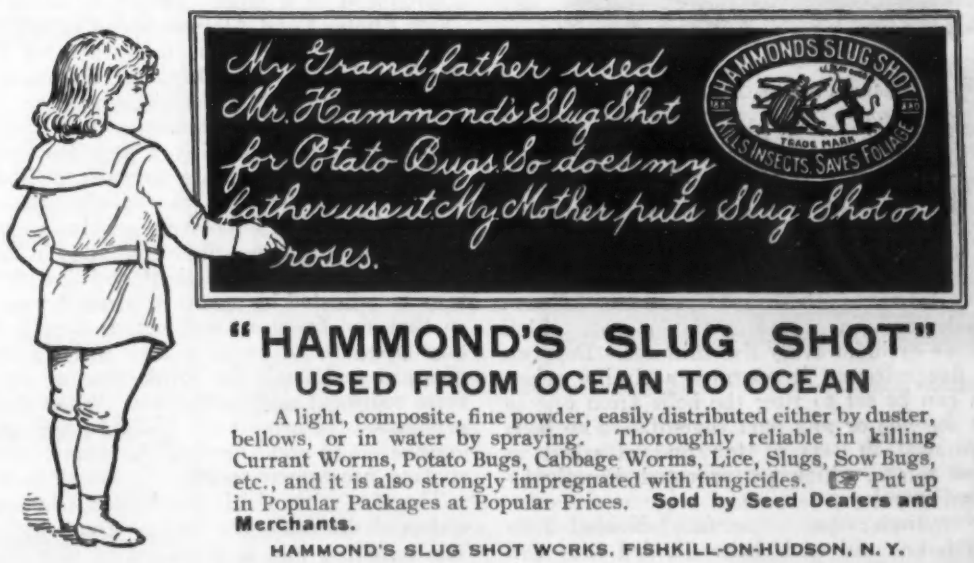
9-25

A VENTURE OF NOTE.

The National Art Supply Co., 228 Wabash Ave., Chicago, Ill., has announced a series of pictures which promise to revolutionize schoolroom decoration throughout the country. The entire series may very well be called, in the words of their originator, "wonderful pictures, in remarkable size, for the price."

For the month of April the company has produced "Nearing Home," by Dicksee. The picture is a royal sepia, in size 30x40 inches, inside measure, framed in quarter-sawed oak, polished and stained to harmonize with the tone of the picture. The price, f. o. b., Chicago, for this remarkable production, is $8.00. The publishers' company guarantee the picture to be high class in every detail and stand ready to allow a return if not entirely satisfactory.

If the venture proves successful, and superintendents and teachers manifest an interest, the company will get out one "wonderful picture, in a remarkable size, for the price," each month, since it is only possible to make a low price by producing each picture in large quantities. Further information concerning the pictures may be obtained by reading their advertisement on page 33 of this paper.


My Grandfather used
Mr. Hammond's Slug Shot
for Potato Bugs. So does my
father use it. My Mother puts Slug Shot on
roses.
HAMMONDS SLUG SHOT
KILLS INSECTS. SAVES FOLIAGE
TRADE MARK

"HAMMOND'S SLUG SHOT"

USED FROM OCEAN TO OCEAN

A light, composite, fine powder, easily distributed either by duster, bellows, or in water by spraying. Thoroughly reliable in killing Currant Worms, Potato Bugs, Cabbage Worms, Lice, Slugs, Sow Bugs, etc., and it is also strongly impregnated with fungicides. Put up in Popular Packages at Popular Prices. **Sold by Seed Dealers and Merchants.**

HAMMOND'S SLUG SHOT WORKS, FISHKILL-ON-HUDSON, N. Y.

AMONG BOOKMEN.

J. T. Guffin, who represented Longmans, Green & Company for several years, has retired from active service and resides at Chicago. "Since I quit the book business," said Mr. Guffin recently, "I have had at least a chance to get acquainted with my family. I may reenter the work, but I shall take plenty of time to think about it."

Fred W. Arbury and W. H. Maddock look as if they were of one age. Both are young and handsome looking, and yet Arbury is Maddock's senior by fifteen years.

Mr. H. L. Steele is the new representative of Benj. H. Sanborn & Company in Ohio. He makes his headquarters in Columbus.

Theodore C. Morehouse, who has been connected with the San Francisco office of The Macmillan Company for several years, and is one of the most popular and successful of California bookmen, has been appointed manager of The Macmillan Company's Pacific coast branch, which has charge of all their business west of the Rocky mountains.

Mr. E. B. Wicker is the new representative for Scott, Foresman & Co., in Iowa and Nebraska.

Mr. Lucien V. La Taste, southern manager for Prang Educational Company, is being assisted by Mr. L. B. Chapman.

Mr. W. H. Van Fossan, agent for Macmillan Co., has charge of the Ohio field, with headquarters at Oberlin.

Has Become a Texan.

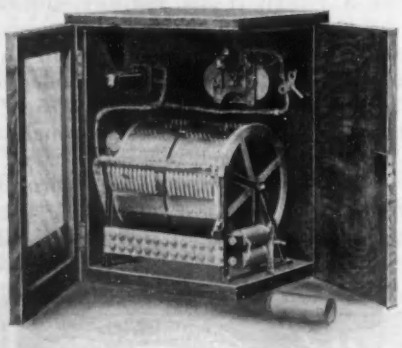
The several school men who attended the recent Indianapolis meeting were gathered one evening in a room at the Claypool Hotel. Among them were State Supt. Bralley, C. Z. Benton and others. Mr. B. D. Berry, the publisher of the Berry Copybooks which were adopted by the state of Texas about a year ago, was also present.

"I believe that all gentlemen present," remarked someone, "are genuine Texans."

"Yes, except one," replied Mr. Barton, "I believe Mr. Berry is a Texan by adoption."

THE OPERATION OF THE ELDRED PROGRAM CLOCK.

A program clock which has been on the market several years and which has met with favor is the Eldred Program Clock. The outfit consists, first, of a self-winding Master Clock of an 80 or 60-beat pendulum. This clock



Eldred Program-Clock System.

makes and breaks a platinum contact every minute and with only this to do, is not overloaded to prevent keeping perfect time. Second, the program cylinder, located in a separate cabinet, with a selector relay, a timing relay and a live relay, some condensers and three switches.

The duties of these parts are as follows: The selector relay operates the magnet which turns the cylinder every five minutes. Between these five minutes, it operates a timing relay, which can be set to ring the bells from one to thirty seconds or any part thereof. The bells are grouped in sets of ten and attached to the live relays, which are operated directly by the timing relay.

The cylinder has a surface divided into twelve hours and each hour divided into five minutes. There is a hole spaced at each five-minute mark and in these holes brass pins can be inserted according to whatever the school periods are. As the cylinder rotates from one five-minute period to another, the pins engage with finger springs, completing the bell circuit, and, as above stated, the bells are controlled for the length of ring by the timing relay between the rotating of the cylinder. The cylinder can be made to accommodate from one program to fifty or larger if needed. Any number of bells can be operated from each program or schedule.

The selector relay has another duty also, and that is to operate secondary clocks, which can be placed about the school, either in the classrooms or corridors. These clocks are grouped, twenty to one relay.

The whole system is operated by a twenty-four-volt battery, either a storage type or other style, which, if properly set up, will last for a school season. Every electric current, where the current is broken, is protected from burning by condensers. These condensers absorb the flash or spark as a sponge absorbs water and gives protection and long life to the platinum contacts.

The three switches referred to have each a separate duty. No. 1 cuts off bell; No. 2 cuts off cylinder magnet; No. 3 cuts off the battery entirely, while a fourth would cut off the secondary clocks should they be used.

It is all built on lines of the very best. Each part is built for that one duty and made strong. There is absolutely no wear on any part and nothing to give out. It is fully guaranteed to be free from any mechanical or electrical defects. All of the connections are properly tagged and proper diagrams and instructions are sent with each outfit.

In addition to the above apparatus, a fire alarm signal which can be operated by hand or by pushing a button in any classroom may be added. This will give a general alarm at all bells. Push buttons can be mounted in the cylinder cabinet for special signalling.

With all outfits there is included a silence wheel, which automatically disconnects the bells at night and Saturday and Sunday or any other day desired, and connects them again on the school days.

Mr. Eldred will be pleased to send any person interested one of his new catalogues which he has just published.

Plaster Casts

FOR DRAWING AND MODELING:

Reproductions from Antique, Mediaeval and Modern Sculpture, Etc.

for

SCHOOLROOM DECORATION

These Art Productions have never failed to receive the highest award when placed in competition with other makes.

C. Hennecke Co.
Formators.
Milwaukee, - Wis.

Send for Catalogue

A SANITARY DRINKING FOUNTAIN.

A drinking fountain which has recently been introduced in a large number of cities in the New England and Atlantic states is the Springfield sanitary fountain, manufactured by the Springfield Sanitary Drinking Fountain Company of Springfield and Chicopee, Mass.

The device works automatically in that when a person desires to drink a pressure upon the lever brings the fountain forward in line with the mouth, at the same time opening the supply valve. The water bubbles up gently in a geyser-like stream through a filter concealed in the pipe of the fountain. The height and flow of water may be adjusted by means of a regulating screw so that the fountain will act uniformly under any pressure of water. The filter assures a pleasant and healthful drink, free at all times from sediment and impurities. When the lever is released the arm of the fountain springs back automatically and shuts off the water, thus preventing unnecessary waste.

The ease with which the fountain is operated makes it desirable for use in school buildings. The bubbling cup is arranged so that the lips will not come in contact with the metal at any time and there will be no possibility of contracting and spreading disease.

An illustration of the Springfield fountain in use will be found in the advertisement of the manufacturers on another page of this journal. The commendations printed there should prove suggestive to school officials who are in need of sanitary drinking devices. Descriptive literature and prices will be gladly sent upon request.

HINTON SCHOOL.

The new school at Hinton has been especially designed to suit the conditions of a small southern community.

The style of architecture adopted is a conventionalized treatment of the mission style, so prevalent in California and the southwest. The walls are faced with Coffeyville paving brick and the windows and doors have lintels of white Carthage stone. Extending around the entire building is a base course finished with white Portland cement matching the limestone trimming. Under the eaves there are brackets sawed in patterns. On the north, south and west sides the gables are decorated with geometric figures of green tile. The roof is covered with cedar shingles dipped in creosote stain and the sash and exterior woodwork is painted white.

The principal entrances are on the north and south sides of the building. Upon entering from either entrance one finds himself in a vestibule opening upon a short stairway which leads to the main floor corridor. This runs north and south and is 11 feet wide. It terminates in stairs at each end leading to the basement and to the second floor. Four classrooms are placed on the lower floor. These have plastered walls, hard pine trim stained a dark Flemish brown, and slate blackboards.

On the second floor there are two classrooms with wardrobes, a teachers' room and an auditorium. The auditorium is arranged so that it can later be divided into two classrooms, as is shown on the plans.

The heating system is a low-pressure steam plant, with direct radiation in each classroom, costing $1,200. The entire structure cost $12,000, complete.

AMONG BOARDS OF EDUCATION.

The New York board of education has adopted a rule to guide janitors in maintaining the temperature of school buildings. It reads:

He (the janitor) shall have the temperature of all rooms occupied for school purposes at not less than 58 degrees Fahrenheit, at 8 a. m. on each school day, and shall maintain the temperature between 65 and 68 degrees Fahrenheit throughout such rooms (with the exception of the gymnasium, in which the temperature shall be maintained between 60 and 65 degrees Fahrenheit) from 9 a. m. until school is dismissed.

SCHOOL BOARD LAW.

Taxpaying citizens of a city school district may sue to restrain the school board from levying taxes to pay interest on illegal school district bonds and to provide a fund to redeem them.—Martin vs. Bennett, Mo. App.

Since the charter of Bayonne contemplates annual appropriations for the support of the schools, the board of education, in the absence of statutory authority, had no power to contract that a school teacher should hold his position during good behavior and efficiency.—Vroom vs. Board of Education of Bayonne, N. J. Sup.

A rule of a board of education that teachers should hold their positions during good behavior and efficiency was in the nature of a legislative act, and not a term of each contract of employment.—Vroom vs. Board of Education of Bayonne, N. J. Sup.

The Greater New York Charter (p. 1117), provided that all public school teachers in any part of the city of Greater New York should continue to hold their positions and be entitled to such compensation as was then provided by the various school boards, subject to a reassignment or to removal for cause. *Held,* that this section operated to permanently protect teachers appointed either before or after the passage of the act in the tenure of their positions, unless removed or reassigned for cause and in the manner approved by law. Judgment N. Y. S. affirmed. — Moore vs. Board of Education of City of New York, N. Y.

The mere acceptance and receipting for a salary and pension by a retired teacher at a lower rate than that to which she was entitled was not a waiver of her right to compensation at the higher rate, where her right to such salary and pension did not rest on contract, but was definitely provided for by statute.—Moore vs. Board of Education of City of New York.

A school teacher, after retirement upon pension, who was never removed nor reduced in rank, is not compelled to resort to mandamus for reinstatement before enforcing her right to back salary and pension to which she is entitled. —Moore vs. Board of Education of City of New York.

School Bonds.

The revised statutes of Missouri for 1899 (p. 9572), provide that for the purpose of erecting school houses and furnishing them in school districts the board of directors shall be authorized to borrow money and issue bonds for the payment thereof, the question of loan to be decided at a special election for that purpose, and that the qualified voters voting in favor of the loan shall have written or printed on their tickets "For the loan," and those voting against the loan the words "Against the loan;" and, if two-thirds of the votes cast shall be "For the loan," the district board shall have power to borrow money in the name of the district and to the amount and for the purpose specified in the notice of the elect. Section 9752a, as added by the laws of 1903 (p. 266), provides that the purposes for which such election may be called may, in the judgment of the school directors, include the purchasing of school house sites. *Held,* that the statutes contemplate that the liberty of choice of the voter shall be exercised on the concrete whole encompassed by the statute if, in the judgment of the school board, the plan as a whole is a proper improvement to challenge a vote of the district.—State ex rel. School Dist. of Memphis vs. Gordon, Mo.

A proposition, submitting to the people, under the statute, the question of incurring an indebtedness for the school district in a specified sum, part of it to be used in building and furnishing a school house in one ward of the district, and the remainder to be used in the building of an addition to and improving the schoolhouse in another ward of the district, embraces a single general subject, and is not violative, by analogy, of the constitution (art. 4, p. 28), providing that no bill shall contain more than one subject, which shall be clearly expressed in its title.—Id. Mo., 1909.

An order of the board of directors of a city school district reciting that a proposition to authorize the board to issue bonds for the erection of an additional school building shall be submitted to the voters at the annual election to be held on a designated date, and that the secretary of the board shall give notice of the same as the law directs is insufficient for failing to specify the place for the election.—Martin vs. Bennett, Mo. App.

Under the Missouri Laws of 1903 (p. 226), empowering the board of directors of a school district to issue bonds to purchase a site for a school building when authorized by the voters, a board, authorized by the voters to purchase a site and erect a new building thereon, is without authority to use the money derived from the sale of bonds in erecting a new school house on the old site.—Id. Mo. App.

School Officers' Duties and Powers.

The Louisiana acts of 1902 (214, p. 6), providing that for incompetency, neglect of duty, or malfeasance in office the governor may remove members of the parish board of school directors, is restrictive, and does not authorize a removable for the "deplorable condition of the school affairs of the parish," since such condition may have resulted from causes entirely disconnected with any incompetency, etc., on the part of members of the board.—Muller vs. Cyr, La.

A SANITARY FLOORING.

Architects and school hygienists have for many years sought a material for schoolhouse floors which would be without cracks, lasting, and at the same time, low in cost. Wood floors are, by the best authorities, considered insanitary because the cracks and crannies invariably turn into breeding spots for microbes and disease germs. Cement floors have been found an impossibility because they are cold, and, in wearing, produce a harmful dust.

A floor material which combines, in a remarkable manner, all of the qualifications for an ideal floor in a schoolroom, is marbleloid, manufactured by the Marbleloid Company of New York City.

Marbleloid floors are laid in a continuous mass on old or new floors and are noiseless, fireproof and lasting. The material of which they are made is produced by a secret process and is applied in a plastic condition.

It has been successfully used in several hundred schools where it is giving perfect satisfaction. A few important buildings where it is installed are as follows:

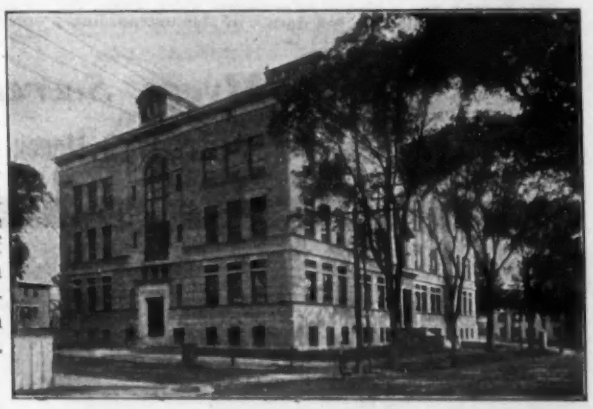
Morton Street Public School, Newark, N. J.; Public School No. 29, College Point, N. Y.; Public School No. 44, Rockaway Beach, N. Y.; Bennett School, Milbrook, N. Y.; Cliffside Park School, Cliffside Park, N. J.; Palisade Park Public School No. 2, Palisades, N. J.; Carlstadt School No. 3, Carlstadt, N. J.; Kent Place School, Summit, N. J.; Hoboken School No. 9, Hoboken, N. J.; Convent Sisters of St. Joseph, Bayonne, N. J.; Weehawken Public School No. 1, Weehawken, N. J.; Scottsdale High School, Scottsdale, Pa.; Coytesville Public School No. 3, Coytesville, N. J.; McKenzie School, Carlton Hill, N. J.; Public School No. 13, Troy, N. Y.; Hebrew Technical School for Girls, New York.

Literature and prices of marbleloid flooring may be obtained by writing to the Marbleloid Company, Broadway and Thirty-fourth St., New York City.

SAMUEL CABOT COMPANY.

Every business man and every business organization makes an effort to be classed as "one of those old substantial and reliable business houses, whose goods are always right, whose business honesty and integrity are without reproach, whose prices meet the best on the market—in a word, one of the leading houses in its line." Men will unconsciously respect the name and confide in the goods. A consistent policy will continue the business with unquestioned success, while the energy and enterprise displayed in its promotion will stand as an expression of appreciation of the idea and aim of its founders.

This is the case with Samuel Cabot (inc.), Boston, Mass. Consistent conservatism, coupled with twentieth century enterprise, characterize every department. Every product is based on scientific accuracy. Time and the severest tests alone warrant the adoption of new articles of manufacture. In return for this policy, the company has merited the confidence of the country. Dealers and users have accepted the various articles until a national demand has created an excellent field for not only Sheathing and Deafening Quilt, but also for Creosote Shingle Stains, Waterproof Cement Stains, Brick Stains, Mortar Colors, and Conservo Wood Preservative.



Strong School, New Haven, Conn., Wm. H. Allen, Architect. Floors and walls deadened with Cabot's quilt.

The business was established by the late Samuel Cabot in 1877. At that time, Mr. Cabot was a prominent chemist and a graduate of the Massachusetts Institute of Technology and of Zurich. While in Germany he studied under the celebrated Prof. Lunge, whose contributions to the world of science have perpetuated his name. All the products of the present company were first prepared in the laboratory of Mr. Cabot. With his scientific training, he was a man equipped to do

Residence showing roof treated with Cabot Shingle Stains

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We have been successfully engaged for the past eight years in teaching music by the University Extension Method. Our courses are endorsed by the leading musical authorities of the world, such as Paderewski, Emil Sauer of the Dresden Conservatory, John Phillip Sousa, Walter Damrosch, The National Federation of Musical Clubs, Lyon and Healy, etc. We have thousands of satisfied students in all parts of the country studying with us by mail at a nominal cost for lessons. Thousands more are waiting to take up our courses when the lessons are presented to them.

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If you have some knowledge of music and are an enthusiastic, ambitious worker and appreciate an opportunity to get ahead in the world, we want you. Your work will consist of meeting music teachers and advanced students and explaining our methods of teaching and organizing University Extension Classes for Normal Study. We furnish you with full information about them, before-hand.

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H. T. Myers, Secretary.

Siegel-Myers School of Music, 1720 Monon Block, Chicago, Ill.

the work. Careful experimentation preceded the production of each article. In fact, the entire business has been built, not on haphazard guess or blind groping in the dark, but upon the foundation of scientific experimentation and investigation.

The truth of all this is evidenced in the scientific character and production of the Cabot Deafening Quilt. Felts and papers and a variety of other material had been tried and used. Some were inflammable, others decayed; some were not even sound-proof, while others harbored vermin and insects. After much experimentation, cured eel-grass (zostera marina) was finally chosen as the ideal material. This is sound-proof, sanitary, non-inflammable, will not ferment or decay, and repels insects and vermin.

The general adoption of Cabot's sheathing and deafening for schoolhouses is possibly the best argument to be advanced in its favor. School authorities have appreciated its scientific correctness and have given it the test of time. Entire buildings, music rooms, kindergartens, gymnasiums, auditoriums, manual training, domestic science rooms, boiler rooms, lecture rooms, etc., have been protected with the quilt. Its serviceability, its ready application, its ease and economy of shipment, together with its sound and heat deadening qualities, have given it extended use and approval.

The other building specialties which the Cabot Company have produced are used with equal success. Cabot's Creosote Shingle Stains, which were invented over twenty-five years ago, were designated as "the first improvement in exterior coloring in half a century." Chemically, Mr. Cabot produced a thoroughly scientific article, combining beautiful and economical coloring with the new and valuable quality of preserving the wood. The stains are clear and transparent, giving, without gloss, soft, deep and velvety color effects, at the same time bringing out the beauty of the grain of the wood. The colors are guaranteed fast and unfading, cannot crack or peel because the stain is in the wood and not on its surface.

The same qualities are found in Cabot's Waterproof Cement and Waterproof Brick Stain and Preservative. Above all, the porous character of cement and brick is changed to a waterproof surface, richly colored and durable. The dampness of walls is made impossible, while the colors produced are warm and rich, the stain sinking into the surface and leaving transparent coloring effects that do not hide the texture of the cement.

Conservo, a wood preservative, is another article of great value and importance. With the rapid advance in the cost of lumber, the company has appreciated the necessity of prolonging the life of wood. Conservo, a brownish liquid which imparts to wood a rich nut-brown shade similar to old pure interior finish, has been pronounced an excellent preservative. It is composed partly of creosote, penetrates any thickness of wood with rapidity, can be applied without heating by any laborer and can be covered by any color of paint. Mine timbers, irrigation conduits, fence posts, silos, sills, planking, piles, wharf and bridge timbers, and almost all parts of school buildings, can be treated with great success.

The other materials produced by this concern are of equal quality. The interior wood stains and mortar colors are both tested and used very extensively. Both come in a form that lends itself to ready application. Like the other materials they are backed by a company that knows its business, produces goods scientifically correct, makes prices right, and has the approval of the American school public.

BUSY SUPERINTENDENTS.

Lima, O. John Davison has been re-elected for a five-year term, at a salary of $3,000 per annum.

Supt. J. A. Carnagey of Paducah, Ky., has been recently re-elected for a term of four years.

The city of Saginaw, W. S., Mich., will shortly have a technical high school, provided through the generosity of one of its philanthropic citizens. Supt. Philip Huber has for some time given especial study to trade schools in Germany and the United States and to the local industrial situation in Saginaw, and will shortly recommend a course of study for the new school. Of $200,000 available, $125,000 will be spent for a building to house the school. Architects are already studying the situation.

Asheville, Tenn. Under the direction of Supt. Tighe, the school libraries are being extended to include thirty or forty well selected books in every classroom, of both elementary and high schools. In the lower schools the list of books proposed includes fiction, poetry, travel, history and elementary science, suited to the needs of each particular grade. No two classes in the city will have the same books; making possible exchanges between schools from time to time.

St. Louis, Mo. Calvin M. Woodward, who has for years been a leading advocate of manual training, has announced his retirement from active service as dean of the department of mechanics and architecture in Washington university.

Commissioner of Education Walter E. Ranger of Rhode Island, has recently been re-elected.

Boston, Mass. The school committee has decided that only college graduates be employed to teach household science in the public schools.

Atlanta, Ga. R. H. Powell, former editor of the School and Home, and a member of the faculty of the State Normal school at Milledgeville, Ga., has been appointed supervisor of rural schools by School Commissioner Jere M. Pound, and is now engaged in the duties of his new position in the schools of Putnam county.

Howard A. Gass, state superintendent of public instruction for Missouri, has announced himself as a candidate for re-election. Mr. Gass has striven successfully to discharge every duty and to measure up to every obligation intrusted to him.

The Massachusetts state association of school superintendents has affirmed its belief in longer tenure of office by adopting a resolution for a statutory term of three years. The members also voted at a recent convention that they be given initiative in the nomination, transfer and dismissal of teachers.

Supt. F. E. Lurton of Anoka, Minn., has recently been accorded a unanimous re-election with $200 increase in salary. The schools have prospered under his management and new departments, including a training course for teachers, have been added.

George B. Brown, a pioneer educator and writer, died in Bloomington, Ill., February 2, at the age of seventy-nine years. Mr. Brown was the author of a number of popular text books on grammar and history and for many years published "School and Home Education."

Detroit, Mich. Supt. Wales C. Martindale has suggested to the board of education a plan for giving teachers a Sabbatical year for study. He proposes that it take place after ten years of service.

Mr. N. Guy Wilson of the Educational Publishing Company, has become a wheat grower. He is the owner of an extensive tract of land near Calgary, in the heart of the wheat country of Alberta province, Canada. Between times he still sells text books to California teachers. his home is in Berkeley.

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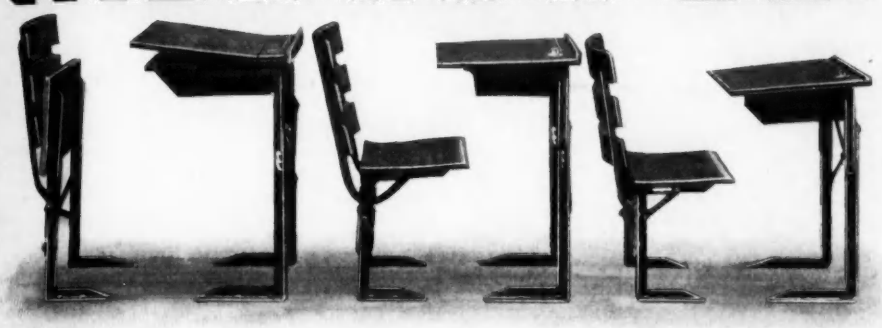
A very large percentage of visiting school men examined the exhibit of Sanitary School Furniture in the room adjoining the assembly hall. Many also examined the desks and benches in actual use in the different schools of the city.



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Sanitary steel, adjustable, individual recitation seats with or without tablet arms, at greatly lower cost per pupil than the old style long benches where five or six students sit together. This is as great an advance in recitation seats over the old style as is the single desk an advance over the old style double. Write for quotation.

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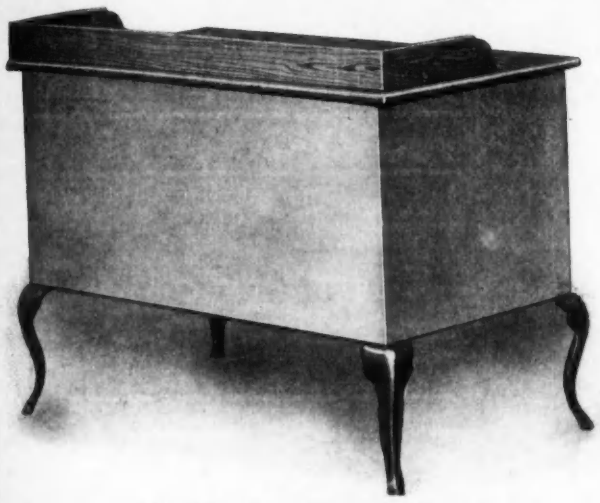
Individual, Indestructible, Comfortable. They cost less per student than the old cast iron stationary desks.



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45 in use in Indianapolis. With 2 drawers, $8.00; 4 Drawers, $9.40.

We produce the best oak desks made, but they are not as good as the steel.

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Over 8,300 steel students' desks and 400 steel teacher's desks sold to 128 different cities during the past 8 months, of which 18 have reordered.

A second order of steel desks is conclusive proof that the first shipment was satisfactory. They must have been more satisfactory than any other kind. Let us tell you where these desks went and show you what the users say of them.

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PROMOTES { HEALTH. COMFORT. ACTIVITY. HAPPINESS. } SAVES { FUEL. TIME. LABOR. MONEY }

Saves its own cost first and then earns money for the user.

The Johnson Service Co.,

MILWAUKEE. BOSTON. PITTSBURG. DENVER.

IN looking backward at the Year just passed, we are happy to extend our thanks to our many friends and School Officers who have patronized us so liberally in the past.

For most of the manufacturers 1909 will be called a dull year. We have much to be thankful for in keeping our factories running full time, and shall always recall with pleasure the business that has been given us by our many patrons, and sincerely hope that they may continue their cordial support to us in the future.

With added facilities we are better prepared than ever to serve you.

Wishing all our customers a prosperous and Happy New Year, we are Yours truly,

HANEY SCHOOL FURNITURE CO., Grand Rapids, Mich.

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IT IS THE TRUTH

That we, also, are independent of all other Persons, Concerns or Combinations.

That our Seating equals any made in Comfort, Healthfulness, Durability and Convenience.

That our prices are as low as is consistent with Good Materials and Well Made goods.

That our facilities for the manufacture are not excelled by any in the business.

We make School, Church, Opera, Hall and Assembly Room Seating, each unexcelled in its line; together with all accessories and supplies that the buyer may want, to supply, fully every need. It costs but a stamp to write to us.

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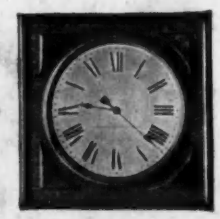
The Self-winding Master Clock, which Controls all the Clocks in the System.



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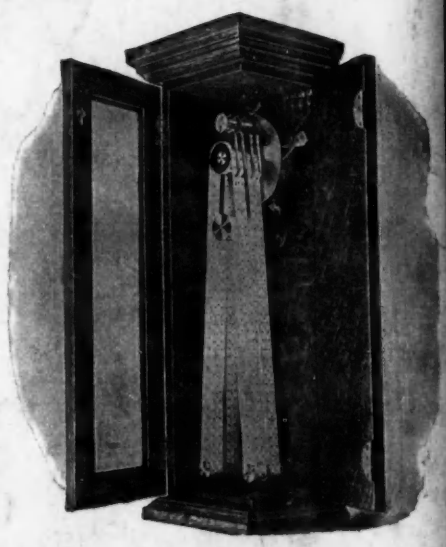

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This system saves you care and trouble. Furthermore, it insures the results you are after—accurate time, and the same time indicated by every clock. All clocks are operated electrically, through a self-winding Master clock. There is no winding or setting clocks in this modern system. They don't run down.

The same Master clock can run a Program clock for automatically ringing signals in class rooms and corridors; for the assembly, dismissal and movement of classes.

Save yourself care and worry by using electric time and automatic signals. This service promotes punctuality, precision, discipline, order and system, which are amongst the most valuable lessons to be taught.

Teachers, superintendents, principals and architects should write today for our specification form No. 142 and bulletin No. S-32 on school installations. No school is too small or too large to be benefited. We have equipped all kinds during the past 25 years.

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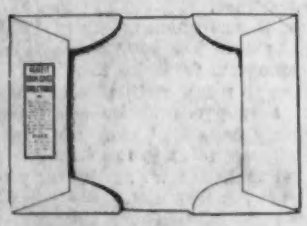
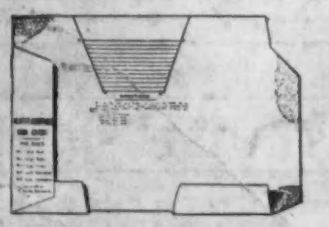


NEATFIT



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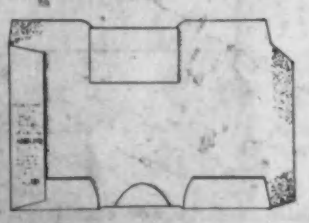

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